

DRAFT
ENGINEERING EVALUATION REPORT
CEMEX CONSTRUCTION MATERIALS PACIFIC, LLC
PLANT NUMBER 2742
APPLICATION NUMBER 26786

900 Whipple Road
Union City, CA 94587

BACKGROUND

CEMEX Construction Materials Pacific, LLC (CEMEX) has been operating a concrete batch plant at the above referenced location in Union City, CA. The plant consists of cement and flyash silos, aggregates stockpiles and bunkers, conveyors, weigh batchers, and concrete batching/truck loadout with the respective abatement devices. The sources are subject to a permit condition ID# 17267. The applicant has submitted this application with a request to increase the concrete production at this plant.

The application covers the following sources:

S-1 Bulk Cement Unload (conveyor), abated by A-5
S-2 Cement Silo, abated by A-5
S-3 Flyash Silo, abated by A-6
S-4 Sand & Gravel Unload (conveyor), abated by A-3
S-5 Sand & Gravel Storage Bunkers
S-6 Sand & Gravel Ground Storage Bunkers
S-7 Weigh Hopper System, abated by A-4
S-8 Truck Loadout (concrete batching), abated by A-4

A-3 Water Spray Bar
A-4 Cyclone w/Baghouse
A-5 Silo (cement) Baghouse
A-6 Silo (flyash) Baghouse

EMISSION CALCULATIONS

The PM10 and toxics emissions are calculated on the basis of incremental increase of material throughput and emission factors taken from the most recent up-dates (6/2006) of U.S. EPA, AP-42 for concrete batching, Chapter 11.12. The spreadsheet given in the permit handbook chapter 11.5 is used to calculate emissions. The spreadsheet is attached herewith.

Total PM10 emissions increase = 0.43 tpy

PLANT CUMULATIVE INCREASE

PM-10 = 0.43 tpy

TOXICS EMISSIONS AND HEALTH RISK SCREENING ANALYSIS

A health risk screening analysis (HRS) is required because incremental increase in emissions of Arsenic and Chromium (hexavalent) exceed the respective toxic trigger levels of 7.2E-03 lb/yr and 7.7E-04 lb/yr given in the Table 2-5-1 of Regulation 2, Rule 5.

Toxic Compound	Incremental Increase in Emissions, lb/yr	Chronic trigger level, lb/yr
Arsenic	2.97E-02	7.2E-03
Chromium (hexavalent)	9.83E-03	7.7E-04

A health risk screening analysis (HRSA) was completed (interoffice memo dated 4/24/15). The results from the HRSA indicate maximum cancer risk of 4.2 in a million, the chronic hazard index of 0.091, and the acute hazard index of 0.82. In accordance with Regulation 2-5-302 these risks are acceptable. Since these risks are combined risks from all sources listed above instead of estimating from individual source, the risks are conservative. The toxic compounds emitting sources (where cement and flyash are processed) are all abated by baghouses, which is considered TBACT per BACT/TBACT workbook (Document 49.1).

STATEMENT OF COMPLIANCE

The emissions from the concrete batch plant operations are expected to continue to comply with the requirements of Regulation 6, Rule 1 for visible emissions.

6-1-301 Ringelmann No. 1 Limitation: Except as provided in Sections 6-1-303, 6-1-304 and 6-1-306, a person shall not emit from any source for a period or periods aggregating more than three minutes in any hour, a visible emission which is as dark or darker than No. 1 on the Ringelmann Chart, or of such opacity as to obscure an observer's view to an equivalent or greater degree.

6-1-401 Appearance of Emissions: Every person responsible for an emission (except from gas fired heat transfer operations regulated by Sections 6-1-301, 6-1-303 and 6-1-304) shall have and maintain means whereby the operator of the plant shall be able to know the appearance of the emission at all times.

BACT requirements of Regulation 2-2-301 are not triggered for any source because daily maximum PM10 emissions are less than 10 pounds.

The project is not subject to the offset requirements of Regulation 2-2-303 for PM-10 because the facility is not a major facility for PM10.

The project does not require CEQA review because the evaluation is a ministerial action conducted using the fixed standards and objective measurements outlined in the Permit Handbook Chapter 11.5 for Concrete batch plant.

The sources are subject to the provisions of Subpart 000, 60.672(b) for fugitive emissions.

§ 60.672 Standard for particulate matter (PM).

(b) Affected facilities must meet the fugitive emission limits and compliance requirements in Table 3 of this subpart within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup as required under § 60.11. The requirements in Table 3 of this subpart apply for fugitive emissions from affected facilities without capture systems and for fugitive emissions escaping capture systems.

Table 3 to Subpart 000 of Part 60—Fugitive Emission Limits

For * * *	The owner or operator	The owner or	The owner or operator must
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	<p>must meet the following fugitive emissions limit for grinding mills, screening operations, bucket elevators, transfer points on belt conveyors, bagging operations, storage bins, enclosed truck or railcar loading stations or from any other affected facility (as defined in §§ 60.670 and 60.671) * * *</p>	<p>operator must meet the following fugitive emissions limit for crushers at which a capture system is not used * * *</p>	<p>demonstrate compliance with these limits by conducting * * *</p>
<p>Affected facilities (as defined in §§ 60.670 and 60.671) that commenced construction, modification, or reconstruction after August 31, 1983 but before April 22, 2008</p>	<p>10 percent opacity</p>	<p>15 percent opacity</p>	<p>An initial performance test according to § 60.11 of this part and § 60.675 of this subpart.</p>
<p>Affected facilities (as defined in §§ 60.670 and 60.671) that commence construction, modification, or reconstruction on or after April 22, 2008</p>	<p>7 percent opacity</p>	<p>12 percent opacity</p>	<p>An initial performance test according to § 60.11 of this part and § 60.675 of this subpart; and Periodic inspections of water sprays according to § 60.674(b) and § 60.676(b); and</p>
			<p>A repeat performance test according to § 60.11 of this part and § 60.675 of this subpart within 5 years from the previous performance test for fugitive emissions from affected facilities without water sprays. Affected facilities controlled by water carryover from upstream water sprays that are inspected according to the requirements in § 60.674(b)</p>

			and § 60.676(b) are exempt from this 5-year repeat testing requirement.
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It is expected that the facility will comply with the opacity limits of NSPS in the Table 3. The permit condition includes visible emission compliance requirements, which are more stringent than NSPS.

There are K-12 schools located within 1000 feet of the project and therefore the project is subject to the public notice requirements of Regulation 2-1-412.

A public notice was distributed on ----- to the parents and guardians of the students of the schools within ¼ mile of the project and to all addresses within 1000 feet of the project. The comment period ended on -----.

(Discuss comments received)

PSD and NESHAPS do not apply.

PERMIT CONDITIONS

The existing permit condition ID #17267 is amended as follows in a strikeout/underlined format.

COND# 17267 -----

CEMEX, Plant #2742

Sources ~~S-1, S-2, S-3, S-4, S-5, S-6, S-7~~ & S-85

(Revision: A# 21134; A# 26786)

- ~~1. The owner/operator shall not exceed the following throughput limits of the materials in any consecutive 12 month period:~~
 - ~~S 1 Bulk cement unloading: 26,000 tons~~
 - ~~S 2 Cement Silo: 26,000 tons~~
 - ~~S 3 Flyash Silo: 1,500 tons~~
 - ~~S 5 Aggregate Bins: 175,000 tons/year~~
 - ~~(basis: cumulative increase)~~
- ~~2. The owner/operator shall abate particulate emissions from S 1, S 2, and S 3 by their respective dust collectors, A 5 and A 6, at all times they are operating.~~
 - ~~(basis: cumulative increase, BACT)~~
- ~~3. The owner/operator shall ensure visible particulate emissions from all sources and operations at this facility shall not exceed Ringelmann 1.0 or fallout on adjacent property in such quantities as to cause nuisance per Regulation 1-301.~~
 - ~~(basis: Regulation 1-301, 6-1-301)~~
- ~~4. The owner/operator shall maintain the following records in a District approved log. These records shall be retained on site for a period of at least two years from date of entry and made available to the district staff upon request.~~

- ~~— a.daily throughput of material at each source~~
- ~~— b.daily throughput shall be totaled on a monthly basis~~
- ~~— (basis: cumulative increase, recordkeeping)~~

- ~~— 5. The owner/operator shall water down all stockpiles and~~
- ~~— maintain a moisture content of a least 4% by weight.~~
- ~~— (basis: Regulation 1-301, 6-1-301)~~

1. The owner/operator shall operate these sources in such a way that visible particulate emissions shall not exceed Ringelmann Number 0.5 (or equivalent opacity) or result in fallout on adjacent property in such quantities as to cause annoyance to any other person.
(Basis: Regulation 6-1-301, Regulation 1-301)

2. The owner/operator shall not exceed the following materials throughput limits in any consecutive 12-month period:

- a. Concrete batching/truck loadout): 150,000 cubic yards or 314,850 tons of concrete
- b. Cement: 35,925 tons;
- c. Flyash: 6,375 tons;
- d. Aggregate: 131,250 tons;
- e. Sand: 119,400 tons.

(Basis: Cumulative increase)

3. The owner/operator shall abate the following sources at all times they are being operated and operate only when their respective abatement devices are functioning properly within the manufacturer's specifications. The outlet grain loading of the baghouses shall not exceed 0.01 gr/dscf:

- a. S-7 & S-8, Weigh Hopper System and Concrete batching/truck loadout abated by A-4, Cyclone with Shaker Type Baghouse
 - b. S-1, S-2, Cement Unload and Silo abated by A-5, Baghouse
 - c. S-3, Flyash Silo abated by A-6, Baghouse
 - d. S-4, Sand and Gravel Unload abated by A-3, Water spray Bar
- (Basis: Cumulative increase, TBACT, Toxic risk screening)

4. The owner/operator shall use water spray sufficiently, and with chemical suppressant, if necessary, to meet the Ringelmann limitation of 0.5 as specified in Part 1.
(Basis: Regulation 6-1-301, Regulation 1-301)

5. The owner/operator shall spray site access road frequently with water to minimize fugitive dust emissions from trucking activities.
(Basis: Regulation 6-1-301, Regulation 1-301)

6. In order to demonstrate compliance with Part 2 above, the owner/operator shall maintain the daily, and monthly records of the material throughput. The ownwer/operator shall total monthly records for each consecutive 12-month period. These records shall be kept on-site in a District approved log for at least 24 months from the date on which a record is made and be made available to the District staff on request.

| (Basis: Recordkeeping, Cumulative increase)

RECOMMENDATIONS

The District has reviewed the material contained in the permit application for the proposed project and has made a preliminary determination that the project is expected to comply with all applicable requirements of the District, State, and federal air-quality related regulations. The preliminary recommendation is to issue permits to operate the sources listed below with amended permit conditions ID #17267. However, the sources are located within 1000 feet of K-12 schools, which triggers the public notification requirements of the District Regulation 2-1-412. Therefore, after the public comments are received, reviewed, and addressed, the District will make a final determination on the permit.

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- S-3 Flyash Silo, abated by A-6
- S-4 Sand & Gravel Unload (conveyor), abated by A-3
- S-5 Sand & Gravel Storage Bunkers
- S-6 Sand & Gravel Ground Storage Bunkers
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- S-8 Truck Loadout (concrete batching), abated by A-4

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- A-6 Silo (flyash) Baghouse

EXEMPTIONS

None

BY: _____

Dharam Singh, PE
Air Quality Engineer II

Increment Amount of Concrete Prod. Proposed (yd/yr) =	28000	at S-8:	Truck loadout			
Composition of Concrete						
Material	lb/yd	ton/yr				
Course Aggregate	1750	27000				
Sand	1592	24000	51000			
Cement	479	19000				
Cement Supplement	85	3500				
Water	292	4088				292 = 35 gal/yd X 8.34 lb/gal
Total Concrete	4198	77588				

Emissions from Concrete Batching
*water spray efficiency 70%

Process	lb/ton	controlled lb/ton	lb/yr	lb/day	tpy
Aggregate delivery to ground storage*	0.0033	0.00231	62.37		
Sand delivery to ground storage*	0.00099	0.000693	16.63		
Aggregate transfer to conveyors*	0.0033	0.00231	62.37		
Sand transfer to conveyor*	0.00099	0.000693	16.63		
Aggregate transfer to elevated storage*	0.0033	0.00231	62.37		
Sand transfer to elevated storage*	0.00099	0.000693	16.63		
Cement delivery to Silo (controlled)		0.00034	6.46		
Cement supplement delivery to silo (controlled)		0.0049	17.15		
Weigh hopper loading*	0.0024	0.00168	85.68		
Truck loading/Mix (controlled)		0.016	360.00		
PM10 Emissions from Concrete Batching (lb/yr) =			706.30	2.717	0.353

Emissions from Unpaved Roads					
Emission Factor of Unpaved Roads (lb/VMT) =	0	(all roads paved at this site)			
# VMT/yr	240				
Abatement Efficiency (%) =	70				
PM10 Emissions from Unpaved Roads (lb/yr) =	0			0.000	0.000

Emissions from Storage Piles					
Emission Factor of Storage Piles (lb/acre/day)	1.7				
Area of Storage Piles (acres) =	0.25				
# Days Storage Piles Exist =	365				
PM10 Emissions from Storage Piles (lb/yr) =	155.125			0.597	0.078
Total PM10 Emissions (lb/yr) =	861.42			3.313	0.431
Total PM10 Emissions (TPY) =	0.43				

Pollutant	Silo Fill	Silo Fill	Truck load/Mix
	lb/ton	lb/ton	lb/ton
	Cement	Cement Supp	Cement & Cement Supp
Arsenic	4.24E-09	1.00E-06	1.16E-06
Beryllium	4.86E-10	9.04E-08	0.00000104
Cadmium	4.86E-10	1.98E-10	9.06E-09
Chromium (hexavalent)*	2.50E-09	1.59E-07	4.10E-07
Lead	1.08E-08	5.20E-07	1.53E-06
Manganese	1.17E-07	2.56E-07	2.08E-05
Nickel	4.18E-08	2.28E-06	4.78E-06
Phosphorus		3.54E-06	1.23E-06
Selenium		7.24E-08	0.00000113

Pollutant	TOTAL	Chronic Trigger	Trigger Chronic	Machine Max	Acute Trigger	Trigger Acute
	lb/yr	(lb/yr)	Screen?	lb/hr	(lb/hr)	Screen?
Arsenic	2.97E-02	7.20E-03	yes	1.14E-04	4.40E-04	no
Beryllium	2.67E-03	4.70E-02	no	1.03E-05		
Cadmium	2.14E-04	2.60E-02	no	8.22E-07		
Chromium (hexavalent)	9.83E-03	7.70E-04	yes	3.78E-05		
Lead	3.65E-02	3.20E+00	no	1.40E-04		
Manganese	4.71E-01	3.50E+00	no	1.81E-03		
Nickel	1.16E-01	4.30E-01	no	4.47E-04	1.30E-02	no
Phosphorus	4.01E-02			1.54E-04		
Selenium	2.80E-03	7.70E+02	no	1.08E-05		

machine incremental output (yd concrete/hr) 4.5
machine incremental output (yd concrete/yr) 28000
multiplier for acute risk (machine max/condition max) 1

* = <http://www.sdapcd.org/toxics/emissions/concrete/concrete1.pdf>