Maricopa County
Air Quality Department

NON-TITLE V
TECHNICAL SUPPORT DOCUMENT

PERMIT NUMBER:	990542	**App. ID(s):**	407890
BUSINESS NAME:	CEMEX – West Valley Plant	**Revision(s):**	3.0.0.0
SOURCE TYPE:	Sand & Gravel	**Revision Type(s):**	Renewal
PERMIT ENGINEER:	Robert Tate	**Date Prepared:**	02/17/2016

BACT: No **MACT:** No **NSPS:** Yes **SYNTH MINOR:** No **AIRS:** No

DUST PLAN REQUIRED: No **DUST PLAN RECEIVED:** No

O&M PLAN REQUIRED: No **O&M PLAN RECEIVED:** No

PORTABLE SOURCE: No **SITE VISIT: Yes**

PROCESS DESCRIPTION:
The source is a crushing and screening plant. There are particulate matter emissions both fugitive and non-fugitive from the crushing and screening operations. Additionally in a prior revision of the permit a 250 HP Perkins diesel fueled prime pump engine was installed to displace water from the silt pond therefore the emissions from the operations are those of particulate matter from crushing and screening operations and the products of combustion from the Perkins prime diesel fueled pump engine.

PERMIT HISTORY:

Date Received	Revision Number	Description
03/19/2010	1.0.1.0	Submitted application 382649 for minor revision of permit
11/02/2009	1.0.2.0	Submitted application 386673 for minor modification of permit for sand and gravel plant in Phoenix, requesting a change in equipment, replacing wet screen.
02/15/2011	1.0.3.0	Submitted application 388072 for minor modification to add dewatering screen.
01/12/2011	2.0.0.0	Submitted application 385523 for renewal.
08/26/2011	2.0.1.0	Submitted application 390360 for minor modification to increase production at wash plant.
05/12/2014	2.0.2.0	Submitted application 402811 for minor modification to add Perkins 250 hp pump for use in displaing water from the silt pond.
06/30/2014	2.0.2.2	Submitted application 403356 for administrative revision of permit.
06/30/2015	3.0.0.0	Submitted application 407890 for permit renewal.
11/20/2015	3.0.1.0	Additionally the source submitted application 410225 for minor revision of the permit to add a 225 HP John Deere diesel engine driven pump for use in displacing water from the silt pond. It was intended that this revision and the renewal above wouold be processed together and issued at the same time.However in subsequent review the source determined that the John Deere engine pump was not a stationary installation and would be moved from one location to another.They have now requested that this revision be withdrawn so that the renewal is to proceed through to issue alone.

PURPOSE FOR APPLICATION:
See the history above

A. APPLICABLE COUNTY REGULATIONS:
Rule 100: General Provisions and Definitions

DRAFT

Rule 200: Permit Requirements
Rule 220: Non-Title V Permit Provisions
Rule 280: Fees: Table F Aggregate
Rule 300: Visible Emissions
Rule 310: Fugitive Dust
Rule 316: Non-Metallic Mineral Processing
Rule 324: Stationary Internal Combustion Engines

B. APPLICABLE FEDERAL REGULATIONS:

Based on determination found in current permit the source is subject to Code of Federal Regulations, Title 40 (CFR 40) Part 60, NSPS Subpart OOO, Standards of performance for Non-Metallic Mineral Processing Plants.

The 250 bhp Perkins diesel engine is being used as a prime engine and was ordered and manufactured late in 2006 making it subject to 40 CFR 60 Subpart IIII—Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. In accordance with information submitted by source on 2/8/2016 the engine is certified as an EPA Tier 3.

C. AIR POLLUTION CONTROL EQUIPMENT/EMISSION CONTROL SYSTEM(s):

Emission Control Equipment at the source is as follows:

System description	Quantity	Comments:
Spray Bars		O&M plan approved 9/5/2000. The 2000 plan included a baghouse used to collet dust on one of the crushers but it is no longer in operation and has been removed from the equipment list and the facility. The 2000 plan has been replaced by the O&M Plan included in the DCP shown as approved below 8/16/2010. That O&M Plan covers only spray bars and the typical watering truck and other control devices under Rule 316 shown below. The current O&M Plan was approved in 2010 as part of the DCP.
Water Truck		Dust Control Plan approved 8/16/2010
Rumble Grate		Dust Control Plan approved 8/16/2010
Street Sweeper		Dust Control Plan approved 8/16/2010

D. EMISSIONS:

In the following embedded icons are the calculated emissions from the crushing and screening plant and the two diesel fueled pump engines used to displace water from the silt pond.

The crushing and screening emissions have been updated in this revision as shown in the embedded icon below, but remain in the same range of emissions as before. The operational/production limitations used in the calculation of PM/PM10 emissions limit the emissions below any regulatory threshold limit such as BACT.The operational/production limitations control the emissions; therefore, no emission limits are required in the permit conditions. The Perkins Pump Engine emission calculations are also included in the embedded icon below.

Revised Emission
Calcs Rev 05Feb201

Following in the Appendix of this TSD are the above referenced calculations in full display.

Visible emissions testing ws conducted June 25, 2013; therefore the permit requirements for such testing will not be included in this permit.

E. HAP EMISSION IMPACTS:

Based on the information provided in the permit application, the facility emits insignificant amount of HAPs; therefore, SCREEN modeling was not performed per the Department's HAPs policy.

F. PERFORMANCE TESTING:

There are no Performance test requirements.

DRAFT

G. REGULATORY REQUIREMENTS AND MONITORING:

Comment: The equipment list was updated in this revision to conform with the equipment listed and the organization of the equipment as presented in prior applications by source. This updating also included adding the source equipment identifaction numbers where available for each piece of equipment. The 50 HP Warman Pumps that were shown by the source in the Wet Plant Section of their equipment list have electric motors and have been moved to the deminimis list to indicate their presence at the plant but that they are not regulated. The diesel storage tank capacity of 7500 gallons qualifies as insignificant under County Appendix D List of Insignificant Equipment.

Permit Conditions 1 – 17 were taken from the current Sharepoint Rule 316 Crushing and Screening Subject to NSPS OOO template and revised for specific application to the source operations and equipment.

Permit Conditions 18 – 24 were taken from the current Sharepoint Rule 324 Non-Emergency Engines Subject to NSPS IIII template and revised for specific application to the source operations and equipment.

Permit Conditions 25 – 32 were taken from the current Sharepoint General Conditions template without revision.

DRAFT

APPENDIX

Fugitive Dust Calculation Worksheet

Company: **CEMEX - West Valley Plant**

Permit: 990542

Hours per day	**24**	hrs/day	Total Plant Capacity:	**400**	tons/hr
Days per week:	**7**	days/wk		9600	tons/day
Weeks per year:	**52**	wks/yr		2,430,000	tons/yr
	364	**days/yr**			
Lt-duty @15mph	0	VMT/yr			
Med-duty @15mph	12,288	VMT/yr			
Hvy-duty @15mph	27,352	VMT/yr			

Dust Emissions from Material Handling

Unless otherwise noted, each emission factor was taken from the MCAQD Emissions Inventory Unit Emission Factors for Sand and Gravel Plants

				Emission Factors (pounds/ton)				Emissions (lbs/hr)		Emissions (lbs/day)		Emissions (lbs/yr)	
Non-Fugitive Emissions	**Material Throughput**		**# of Units**	**PM-10**		**PM**		**PM-10**	**PM**	**PM-10**	**PM**	**PM-10**	**PM**
Crushing with watering [1]	**2,430,000**	tons/yr	**2**	0.00010	[1]	0.00120	[1]	0.08	0.96	1.92	23.04	486	5832
Screening with watering [1]	**2,430,000**	tons/yr	**2**	0.00035	[1]	0.00220	[1]	0.28	1.76	6.72	42.24	1701	10692
Conveyors [1,2]	**2,430,000**	tons/yr	**19**	0.000045	[1]	0.00014	[1]	0.34	1.06	8.21	25.54	2078	6464
Total:								**0.7**	**3.8**	**17**	**91**	**4,265**	**22,988**

				Emission Factors (pounds/ton except stockpiles which are lb/acre-yr)				Emissions (lbs/hr)		Emissions (lbs/day)		Emissions (lbs/yr)	
Fugitive Emissions	**Material Throughput**		**# of Units**	**PM-10**		**PM**		**PM-10**	**PM**	**PM-10**	**PM**	**PM-10**	**PM**
Mining/Plant feed, handling	**2,430,000**	tons/yr	**1**	0.00055	[4]	0.00157	[5]	0.22	0.63	5.28	15.09	1337	3819
Surge Pile forming, handling	**2,430,000**	tons/yr	**1**	0.00055	[4]	0.00157	[5]	0.22	0.63	5.28	15.09	1337	3819
Pile forming, handling [2]	**2,430,000**	tons/yr	**1**	0.00055	[4]	0.00157	[5]	0.22	0.63	5.28	15.09	1337	3819
Load out, handling with waterir	**2,430,000**	tons/yr	**1**	0.00055	[4]	0.00157	[5]	0.22	0.63	5.28	15.09	1337	3819
Load out, handling without wat	**0**	tons/yr	**0**	0.00240	[4]	0.00686	[5]	0.00	0.00	0.00	0.00	0	0
Stockpiles	**3**	acre	**N/A**	63	[3]	180	[3,5]	N/A	N/A	0.52	1.48	189	540
Total:								**0.9**	**2.5**	**21.6**	**61.8**	**5535.0**	**15814.3**

DRAFT

Dust Emissions Calculations Continued

Fugitive Emissions From Vehicle Traffic	PM10 EF (lb/VMT)	Control Efficiency	PM10 Emissions (tons/yr)	PM Emissions (tons/yr)[5]
Light Duty Vehicles @15 mph	0.44	90%	0.0	0.0
Medium Duty Vehicles @15 mph	0.86	90%	0.5	1.5
Heavy Duty Vehicles @15 mph	3.2	90%	4.4	12.5

Emissions Summary (excluding fugitives)				
PM10:	**16.8**	**lbs/day**	**2.1**	**tons/yr**
PM:	**90.8**	**lbs/day**	**11.5**	**tons/yr**

Emissions Summary (including fugitives)		
PM10:	**9.8**	**tons/yr**
PM:	**33.4**	**tons/yr**

[1] Reference: U.S. EPA, "Compilation of Air Pollutant Emission Factors: Volume I: Stationary Point and Area Sources" (AP-42), fifth ed. Table 11.19.2-2.

[2] Use 070503 for processes associated with any rock mining or processing. Use 070599 for other processes, such as a sales lot or concrete plant.

[3] The stockpile emission factor above assumes 90% control, assuming regular watering or use of a chemical palliative (dust suppressant).

[4] Reference: MCAQD Helpsheet for Sand and Gravel Plants

[5] PM-10 assumed to be equal to 35% of PM

DRAFT

Diesel Engines Worksheet:

Diesel Industrial Engines Calculation Worksheet

Company CEMEX - West Valley Plant

Permit: 990542 3.0.0.0

Diesel Engines

	Capacity		Hrs/day	Hrs/year	
1)	250	hp	24	8760	Perkins Engine and Pump
2)					
3)					
4)					
5)					
Total	250	hp			

Manufacturer's Emission Factors

(Perkins Engine is 250 HP and it is a Tier 3 Engine (see attached manufacturer's data sheet)

CO:	3.5	g/kw-hr =	2.625	g/Hp-hr.=	**0.0058**	**lb./hp-hr.**
NOx:	4	g/kw-hr =	3	g/Hp-hr.=	**0.0066**	**lb./hp-hr.**
SOx:	NA	NA	NA	NA	**NA**	**NA**
PM10:	0.2	g/kw-hr =	0.15	g/Hp-hr.=	**0.0003**	**lb./hp-hr.**
VOC:	NA	NA	NA	NA	**NA**	**NA**

Conversion: 1 gram = 0.002205 lbs
1 Hp = 0.75 kW

Emissions

	Daily Emissions[a]		Annual Emissions[b]	
CO:	**34.7**	**lbs/day**	**12,676**	**lbs/yr**
NOx:	**39.7**	**lbs/day**	**14,487**	**lbs/yr**
SOx:	**NA**	**lbs/day**	**NA**	**lbs/yr**
PM10:	**2.0**	**lbs/day**	**724**	**lbs/yr**
VOC:	**NA**	**lbs/day**	**NA**	**lbs/yr**

NOTES:

[a] Based on 24 hours per day for 250 hp unit.

[b] Based on 8760 hours per year for 250 hp unit.

DRAFT

Items 1-15 Front page: Items 1 to 15 (14 for Renewals) must be completed.

Notes to engineer:

- *For renewal applications the source must either answer 'No' to questions 2-5 or submit an application for a permit modification.*
- *Item 8: Many applicants do not know the SIC code or NAICS code for their industry. For a new application the code can be obtained by doing an on-line search. http://www.osha.gov/pls/imis/sicsearch.html*
- *Items 5, 7 and 14: These may be the same for many applicants.*

Complete: [x] Incomplete: [ ]

Item 16: A simple site diagram has been included, preferably on a standard size paper. Detailed blueprints or construction drawings are not required.

Complete: [ ] Incomplete: [ ] N/A: [x]

Item 17: A simple process flow diagram on a standard size paper is preferred. A process flow diagram may not be needed for some small businesses.

Complete: [ ] Incomplete: [ ] N/A: [x]

Item 18: An O&M plan is required only for a control device. An O&M plan is not required for a spray booth. Instead of including the O&M plan with the application, an applicant may submit it after receiving the permit.

Complete: [x] Incomplete: [ ] N/A: [ ]

Item 19: A dust control plan, if required, must accompany the permit application. The plan will be reviewed and approved by the dust compliance group.

Complete: [x] Incomplete: [ ] N/A: [ ]

Item 20: The applicant needs to complete only those sections of the permit application that are applicable.

Complete: [x] Incomplete: [ ] N/A: [ ]

Notes to engineer:

- *Concerning Section Z: Many applicants will not be able to perform these engineering calculations. We will accept the permit application with a blank Section Z.*

Instructions for completing Sections A, B, C, D, E-1, E-2, F, G, H, I, J, K-1, K-2, K-3, K-4, L, M, X-1, X-2, Y and Z of the permit application are included at the beginning of each section and are self-explanatory.

In general, a material safety data sheet (MSDS) is required for each chemical used, stored or processed at the facility. Exceptions are for very common materials, such as gasoline, diesel, acetone, etc.

Business name: CEMEX – West Valley Plant

Permit number: 990542

Completeness review completed.
Application determined to be: Complete: [x] Incomplete: [ ]

Permit Engineer: Robert Tate Date: 02/17/2016

DRAFT