

TECHNICAL SUPPORT DOCUMENT (TSD)

MAY 2012

I. GENERAL COMMENTS:

A. Company Information

1. CalPortland Company
2. 6601 N. Casa Grande Highway, Tucson, Arizona

B. Background

Historical records indicate that CalPortland Company formally known as ‘CPC Southwest Materials, Inc.’ and prior to that ‘Tucson Ready Mix Inc.’ was first permitted with a 5-year, Class II air quality operating permit effective on July 3, 2002. The facility has not incurred any major air quality violations. Past minor enforcements actions worth noting are presented in III.A of this TSD.

This technical support document is a review of the permit application dated January 1, 2006, updated March 9, 2007.

C. Attainment Classification

This facility is located in an area which is in attainment for all pollutants.

II. SOURCE DESCRIPTION

A. Process Description

The products at the facility include Hot Mix Asphalt, Cold Mix Asphalt, Rubberized Asphalt, Recycled Asphalt and Hot Mix Asphalt containing Petroleum Contaminated Soil.

Hot mix asphalt is produced by drying and heating aggregates with asphalt cement within a mixing drum. The facility uses a “double barrel” type mixing drum where the asphalt binder is mixed between the inner and outer drum. The facility has a maximum rated capacity of 450 tons per hour with the existing operating capacity approximately 360 tons per hour. The annual plant production for all products is limited to 500,000 tons/year. The Hot Mix Asphalt (HMA) plant is regulated under the New Source Performance Standards (NSPS) for Hot Mix Asphalt Plants, Subpart I.

B. Air Pollution Control Equipment

The emissions from the drum dryer and storage silo are controlled by a baghouse that is reported to be 99% efficient. Fugitive sources include the cold feed bins, a single impact crusher, two screens, and various augers; Emissions from these fugitive sources are controlled with the use of spray bars. Water spraying operations are approximately 70% efficient in controlling particulate emissions.

III. REGULATORY HISTORY

A. Testing & Inspections

The facility has been inspected since the initial issuance of air quality operating permit. Following the September 29, 2003 compliance inspection, the facility received a Compliance Status Letter (CSL) for the failure to perform monthly visual emission readings at the Asphalt Plant as required by the permit. The CSL also detailed a failure to maintain an operational log of the electrical generator. This compliance deficiency was adequately resolved on October 29, 2003.

On November 15, 2006, the facility contracted Applied Environ-Solutions, Inc., to conduct a particulate matter/opacity compliance test on their 1991 Astec Asphalt Plant Baghouse. The results of the performance test meet compliance with the conditions of the permit.

B. Excess Emissions

The facility has submitted no reports of excess emissions.

IV. EMISSIONS ESTIMATES

The air pollutant resulting from the HMA plant that is of primary concern and is regulated by EPA New Source Performance Standards (NSPS) is particulate matter. The NSPS for the HMA facilities prohibits emissions of particulate matter in excess of 0.04 grains per dry standard cubic foot (gr/dscf) of exhaust gas. It also restricts visible emissions to less than 20% opacity.

The emission sources at the HMA plant can be grouped into 2 categories: Non fugitive emissions and fugitive emissions. Non fugitive emissions include emissions vented through the dryer vent or stack, and the asphalt heater. Fugitive emissions include particulate emissions from transfer points, stockpiles, loading operations, cold storage bins, cold storage aggregate conveyor, and truck traffic.

The dryer operation is the main emission source at the HMA plant. The reaction of nitrogen and oxygen in the dryer creates nitrogen oxide (NO_x) emissions in the combustion zone, while sulfur dioxide (SO₂) emissions are the product of oxidation of sulfur containing compounds in the natural gas fuel. Particulate emissions result from the volatilization of materials that later form condensates and from material handling. Volatile organic compound (VOC) and hazardous air pollutant (HAP) emissions are the by-product of incomplete combustion.

Detailed calculations of these emissions have been provided by the Permittee and have been reviewed and approved by PDEQ. Based on these emission estimates, the facility is a Class II, synthetic minor source for NO_x, CO, SO_x and a true minor for all other criteria pollutants and HAPs. A summary of the facility's annual potential to emit (PTE) of regulated pollutants is presented in Table 1 below.

Annual Potential to Emit

Source	Emissions (tons/yr)					
	PM ₁₀	NO _x	CO	SO _x	VOC	HAPs
Fugitives	4.61	-	-	-	-	-
Non Fugitives	5.22	14.78	33.37	14.51	8.06	2.52
Potential to Emit	9.83	14.78	33.37	14.51	8.06	2.52

V. APPLICABLE REQUIREMENTS

A. Code of Federal Regulations (CFR):

The following New Source Performance Standards are applicable to the facility:

- 40 CFR Part 60 Subpart A - General Provisions - applicable to equipment subject to 40 CFR Part 60, Subparts I as described below.
- 40 CFR Part 60 Subpart OOO - Standards of Performance for Nonmetallic Mineral Processing Plants the provisions of this subpart only apply to the crusher (Equipment ID 009).
- 40 CFR Part 60 Subpart I - Standards of Performance for Hot Mix Asphalt Facilities – the provisions of this subpart apply to the hot mix asphalt facility. For the purpose of the subpart, a hot mix asphalt facility is comprised only of any combination of the following: dryers; systems for screening, handling, storing, and weighing hot aggregate; systems for loading, transferring, and storing mineral filler, systems for mixing hot mix asphalt; and the loading, transfer, and storage systems associated with emission control systems.

B. Pima County Code (PCC) Title 17, Chapter 17.12:

- 17.12.040 Reporting requirements
- 17.12.045 Test methods and procedures
- 17.12.050 Performance tests
- 17.12.165 Permit application processing procedures for Class II and Class III permits
- 17.12.185 Permit Contents for Class II and Class III permits
- 17.12.190 Permits containing synthetic emission limitations and standards
- 17.12.300 Portable sources
- 17.12.520 Fees related to Class II and Class III permits

C. Pima County Code (PCC) Title 17, Chapter 17.16:

- 17.16.010 Local rules and standards; Applicability of more than one standard
- 17.16.020 Noncompliance with applicable standards
- 17.16.030 Odor limiting standards
- 17.16.050 Visibility Limiting Standard
- 17.16.060 Fugitive Dust Producing Activities
- 17.16.100 Particulate Materials
- 17.16.110 Storage Piles
- 17.16.130 Applicability
- 17.16.150 Hazardous waste, hazardous waste fuel, used oil, and used oil fuel burning equipment
- 17.16.370 Standards of Performance for Gravel or Crushed Stone Processing Plants

D. Pima County Code (PCC) Title 17, Chapter 17.20:

- 17.20.010 Source sampling, monitoring and testing
- 17.20.040 Concealment of emissions

E. Pima County Code (PCC) Title 17, Chapter 17.24:

- 17.24.020 Recordkeeping for compliance determinations

VI. PERMIT CONTENTS

The following section of the TSD refers to the conditions of the permit and explains in detail why the permit was written with the conditions seen.

A. Applicability:

CPC Southwest Materials, Inc., is required to obtain a Class II permit for this Hot Mix Asphalt plant operation, pursuant to PCC 17.12.140.B.2.a since the facility is subject to the NSPS for Hot Mix Asphalt Plants (Subpart I) and NSPS Nonmetallic Mineral Processing Plants (Subpart OOO) for the crusher (Equipment ID 009).

B. Emission Limits/ Standards:

1. NSPS Facility (Hot Mix Asphalt Plant)

II.A.1 of the permit

The annual plant production of asphalt concrete limitation was specified by the Permittee in their permit application received on March 13, 2007. This voluntary limitation has the effect of reducing the annual emissions of the source to below the major source emission threshold.

II.A.2 of the permit

II.A.2 identifies the Particulate Matter Standard taken directly from the 40 CFR 60, Subpart I: 60.92(a)(1).

II.A.3 of the permit

II.A.3 identifies the opacity standard taken directly from the 40 CFR 60, Subpart I: 60.92(a)(2).

II.A.4 of the permit

The Operation and Maintenance Requirement is a standard permit inclusion taken directly from 40 CFR 60.11 (d) with cited reference to Pima County Code (PCC) 17.16.020.A which states in part that “a source shall comply with a discharge standard of the full range of the source’s operating rates.”

II.A.5 of the permit

The Fuel Limitation is predicated on the source voluntarily declaring the exclusive use of on-specification used oil as fuel for the drum dryer. PCC 17.16.150.B.1 states that the permit must include the “limitations on the types, amounts and feed rates of used oil.” These limits for on-spec used oil are found in 40 CFR 279.12. The voluntary declaration of the use of this fuel triggers a Material Permit Condition pursuant to PCC 17.12.185.A.2.

II.A.6 of the permit

The Circumvention standard is taken directly from 40 CFR 60.12, however, the Permittee has asked that PDEQ permitting and compliance personnel be aware that voluntary, experimental dust control devices (dust curtains, dust boxes, etc) may be in place in problem areas (burner to slat, etc). These experimental items may eventually become part of the declared pollution control devices and added to the permit, but only upon declaration by the Permittee.

2. Crusher (Equipment ID 009 Only)

II.B.1.a of the permit

Fugitive emissions are emissions that are not caught by a capture system which are often due to equipment leaks, evaporative processes and windblown disturbances. The fugitive emissions standard is taken directly from 40 CFR 60, Subpart OOO: 60.672(b), Table 3.

II.B.1.b of the permit

The fugitive emissions exemption is taken directly from 40 CFR 60, Subpart OOO: 60.672(d).

II.B.2 of the permit

The Operation and Maintenance Requirement is a standard permit inclusion taken directly from 40 CFR 60.11 (d) with cited reference to PCC 17.16.020.A which states in part that “a source shall comply with a discharge standard of the full range of the source’s operating rates.”

II.B.3 of the permit

The particulate matter emissions limitation, monitoring provision and testing requirement exemption is taken directly from 40 CFR 60, Subpart OOO: 60.672(d)(1). The key point in this standard is the term “size”. For crushers, size is defined as the rated capacity in tons per hour. Rated capacity is the manufacturer’s highest rated capacity. To ensure that the replacement equipment is indeed of equal or smaller size, the manufacture’s highest rated capacities of both the existing equipment and the replacement equipment should be the same. It should be noted, that if this exemption is applicable, the Permittee is only exempt from 60.672, 60.674 and 60.675; all other requirements of the Subpart are applicable.

3. Facility-Wide Operations

II.C.1 of the permit

The requirement that the Permittee is subject to the more stringent emission limitation or standard is taken directly from PCC 17.16.010.B. In some cases, more than one emission standard may apply to an emission unit(s) for example, a unit could be subject to a SIP rule, an NSPS, and a BACT determination. The most stringent requirement "assures compliance" with overlapping applicable requirements.

II.C.2 of the permit

II.C.2.a is a Material Permit Condition based upon the voluntary use of baghouses to effectively comply with the synthetic minor emission limitation.

II.C.2.b is a Material Permit Condition based upon the enforceable air pollution control requirement to ensure compliance with PCC 17.16.100.A. The Permittee has asked that “dust curtains” be included to represent the in-house design, build and installation of experimental items used in problem areas.

II.C.2.c is a Material Permit Condition based upon the enforceable air pollution control requirement to ensure compliance with PCC 17.16.370.D.

II.C.3 of the permit

The requirement that the Permittee prevent discharge of air pollution to adjoining properties is taken directly from PCC 17.16.020.B.

The Control Officer may require the installation of abatement equipment where a stack, vent or other outlet is at such a level that fumes, gas mist, odor, smoke, vapor or any combination thereof constituting air pollution are discharged to adjoining property. Abatement may include the alteration of such stack, vent or other outlet by the Permittee thereof to a degree that will adequately reduce or eliminate the discharge of air pollution to adjoining property.

II.C.4 of the permit

The opacity standard associated to all point and non point sources is taken directly from Pima County Code (PCC) 17.16.050.B and PCC 17.16.130.B.1. By law, the Permittee cannot allow any equipment under his/her control to emit effluents (such as exhaust from a baghouse) that exceed specific values of opacity (the degree to which light cannot pass through the plume of effluent/exhaust.) The value of opacity that cannot be exceeded is stated in the permit for each emission source. The Permittee demonstrates compliance with this regulation to PDEQ by checking the exhaust from the emission source under his/her control daily, while the HMA Plant is operating and keeping complete records of these checks.

II.C.5 of the permit

The visibility limiting standard is taken directly from PCC 17.16.050.A and PCC 17.16.050.D. Visible emissions are comprised of a variety of particulate matter ranging in sizes from 0.1 micrometer to 200 micrometers in diameter (compared to the average human hair, which is 70 micrometers in diameter).

Particles are categorized as:

- Smoke • Dust • Fumes
- Soot • Fly Ash • Liquid Droplets

In determining what precautions to take, consider:

- The proximity of dust-emitting operations to human habitations or activities, and
- Atmospheric conditions that might affect the movement of particulate matter.

Reasonable precautions include but are not limited to:

- Using water or chemicals
- Applying dust suppressants
- Using control equipment
- Covering trucks
- Paving
- Removing materials

II.C.6 of the Permit

The fugitive emissions standards are taken directly from PCC 17.16.060, PCC 17.16.100 and PCC 17.16.110.A.

Dust is particulate matter (PM) consisting of very small liquid and solid particles. Fugitive dust is PM suspended in the air by the wind and human activities. It originates primarily from the soil and is not emitted from vents, chimneys, or stacks. Keeping potential fugitive dust problems under control is an everyday job and planning ahead by perhaps developing a dust prevention and control plan would be prudent to help control fugitive dust emissions.

II.C.7 of the Permit

The concealment of emissions verbiage is taken directly from PCC 17.20.040.

II.C.8 of the Permit

Specific applicability requirements apply for each type of revision pursuant to PCC 17.12.235, PCC 17.12.255 and PCC 17.12.260. If the Permittee is planning a facility change, then he/she is required to identify the appropriate type of revision sought.

II.C.9 of the Permit

Prohibition from emitting gaseous or odorous materials from equipment, operations or premises under control in such quantities or concentrations as to cause air pollution. This odor limiting standard is taken directly from PCC 17.16.030.

C. Monitoring Requirements

1. NSPS Facilities (HMA Plant)

III.A.1 of the permit

These are standard PDEQ monitoring requirements. The Permittee is required to quantify the total asphalt production to demonstrate compliance with the annual plant production limitation.

III.A.2 of the permit

The particulate matter compliance demonstration is taken directly from the general provisions of the NSPS, 40 CFR 60, Subpart A, 60.11(d). The emissions from the facility have meet the 0.04 gr/dscf and 20% opacity standard as demonstrated in the EPA Method 5 emissions test on 11-15-2006.

III.A.3 of the permit

EPA Reference Method 9 is found in 40 CFR Part 60, Appendix A. It was adopted as a visible emissions inspection method in an effort to standardize the training and certification of observers and to ensure that reliable and repeatable opacity observations could be conducted anywhere in the United States.

According to Method 9, a violation has occurred if the average of any group of 24 consecutive readings (six minutes) in a one-hour period exceeds the standard.

III.A.4 of the permit

The operational checks for visible emissions at the exhaust stack of each baghouse ID#724 and #786) are standard PDEQ monitoring requirements.

III.A.5 of the permit

The onus is wholly upon the source to ensure compliance with the fuel standard when used oil is combusted in the drum dryer.

2. Crusher (Equipment ID 009 Only)

III.B. of the Permit

The opacity checks are standard PDEQ monitoring requirements.

3. Facility-Wide Requirements

III.C.1 through III.C.2 of the permit

These are the standard PDEQ monitoring requirements.

III.C.3 of the permit

PDEQ defers to the manufacturer's recommendations for baghouse maintenance. If the Permittee does not have these onsite, they are required to submit an Operations and Maintenance Plan for approval by the Control Officer prior to issuance of the permit.

D. Recordkeeping Requirements

NSPS Facilities (Mining Operations, Aggregate and HMA Plant)

IV.A of the permit

These are standard PDEQ recordkeeping requirements. The daily recordkeeping requirement is a tiered recordkeeping approach to determine the twelve month rolling total of concrete asphalt production.

IV.B.1 of the permit

The provisions of NSPS Subpart OOO required the Permittee to maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility [HMA Plant and Crusher (Equipment ID 009)]; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative.

The primary use for these records is to determine the applicability of the provisions in 40 CFR 60.8(c). 40 CFR 60.8(c) indicates that emissions in excess of an applicable limit during startup, shutdown, and malfunction are not considered to be a violation of the emission limit unless otherwise specified in an applicable standard. The NSPS general provisions have no exemption provision.

IV.B.2 and 3 of the permit

These are the standard PDEQ recordkeeping requirements.

IV.B.4 of the permit

This recordkeeping requirement is taken directly from PCC 17.24.020.A.

E. Reporting Requirements

1. NSPS Facilities (HMA Plant and Nonmetallic Mineral Processing Plant)

V.A. of the permit

V.A.1 of the permit is taken directly from 40 CFR 60.7(a)(4).

V.A.2 of the permit is taken directly from 40 CFR 60.14(e) and 40 CFR 60.15.

V.A.3 of the permit is taken directly from 40 CFR 60.7(a)(4).

2. Facility-Wide Requirements

V.B of the permit

The excess emissions reporting requirements are identified in the Additional Permit Requirements of the permit. These requirements are taken from PCC 17.12.040.

F. Testing Requirements

1. NSPS Facilities (HMA Plant)

VI.A.1 of the permit

These Particulate Matter Testing Requirements are taken directly from 40 CFR 60.93. The performance testing conditions identified in the general provisions the NSPS specify that performance tests are conducted during periods of representative performance and consist of three repetitions of the applicable test method.

The applicable test methods to determine particulate concentration are EPA Methods #1-5. The initial performance test was conducted according to these EPA test methods on 11-05-2006 and the particulate emissions were measured at 0.0393 gr/dscf (the emission standard is 0.04 gr/dscf).

VI.A.2 of the permit

The Opacity measurement procedures are referenced in 40 CFR 60.93(b)(2) and 40 CFR 60.11. The general provisions of the CFR Part 60 identify Method 9 to be the specified method to determine opacity.

2. Crusher (Equipment ID 009 Only)

VI.B of the permit

Pursuant to the general provisions (40 CFR 60.11), Method 9 is identified to be the specified method to determine opacity. NSPS Subpart OOO identifies additional testing requirements in determining compliance with the opacity standard.

VII. IMPACTS TO AMBIANT AIR QUALITY

This is not a major source so no impact studies to ambient air quality are necessary.

VIII. CONTROL TECHNOLOGY DETERMINATION

No control technologies needed to be determined; source is not subject to BACT or LAER.

IX. PREVIOUS PERMIT CONDITIONS

None, this is a new facility that did not have an operating permit.

X. INSIGNIFICANT ACTIVITIES

None identified by CalPortland Company.