NOTICE OF FINAL RULEMAKING

MARICOPA COUNTY AIR POLLUTION CONTROL REGULATIONS

REGULATION III

RULE 316 – NONMETALLIC MINERAL PROCESSING

PREAMBLE

1. Sections affected | **Rulemaking action**

Rule 316, all sections — Amend

2. Statutory authority for the rulemaking:

Authorizing statutes: Arizona Revised Statutes, Title 49, Chapter 3, Article 3, Sections 479 and 480 (ARS §49-479, ARS §49-480)

Implementing statute: Arizona Revised Statutes, Title 49, Chapter 1, Article 1, Section 112 (ARS §49-112)

3. The effective date of the rules:

Date of adoption: June 8, 2005

4. List of all previous notices appearing in the register addressing the proposed rules:

a. Notice of Rulemaking Docket Opening: Volume #10, A.A.R. Issue #23, p. 2267, June 4, 2004

b. Notice of Proposed Rulemaking: Volume #11, A.A.R. Issue #6, p. 625, February 4, 2005

5. Name and address of agency personnel with whom persons may communicate regarding the rulemaking:

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6. An explanation of the rule, including the department's reasons for initiating the rules:

Rule 316 limits the emission of particulate matter (PM_{10}) into the ambient air from any commercial and/or industrial nonmetallic mineral processing plant and/or rock product plant. PM_{10} emissions are generated from commercial and/or industrial nonmetallic mineral processing plants and/or rock product plants during the mining, processing, and handling (i.e., transporting, loading/unloading, conveying, crushing, screening, mixing, and storing) of nonmetallic minerals. Unpaved roads and trackout are other sources of PM_{10} emissions from such operations.

Maricopa County adopted Rule 316 in July 1993 and revised Rule 316 in April 1999, in order to make the existing standards consistent with revisions to the Standards Of Performance For

Nonmetallic Mineral Processing Plants (40 Code Of Federal Regulations (CFR) Part 60 Subpart OOO).

The revisions to Rule 316 adopted June 8, 2005 incorporate best available control measures (BACM) and most stringent measures (MSM) that are included in the revised PM_{10} State Implementation Plan (SIP) - the Final Revised PM_{10} State Implementation Plan For The Salt River Area dated August 2004. With the revisions to Rule 316, Rule 316 requires compliance with emission limitations and the implementation of process controls and fugitive dust control measures by any commercial and/or industrial nonmetallic mineral processing plant and/or rock product processing plant.

On July 2, 2002, the Environmental Protection Agency (EPA) found the controls proposed in the Arizona Department Of Environmental Quality's (ADEQ's) May 1997 Plan For Attainment Of The 24-Hour PM_{10} Standard–Maricopa County PM_{10} Nonattainment Area, inadequate to ensure the attainment of the PM_{10} national ambient air quality standards (NAAQS) at the Salt River air quality monitoring sites. The finding of inadequacy included the State Implementation Plan's (SIP's) attainment and reasonable further progress (RFP) demonstrations for the 24-hour PM_{10} standard at the Salt River monitoring sites and three other microscale sites in the Maricopa County PM_{10} nonattainment area (Maryvale, Gilbert, and West Chandler).

Although the EPA approved Arizona's 1997 SIP revision and additional required controls proposed by Maricopa County on August 4, 1997, EPA's Aerometric Information Retrieval System (AIRS) continued to show exceedances at the Maricopa County PM_{10} nonattainment area Salt River site - recording expected exceedances in 1999, 2000, and through three quarters of 2001. Consequently, the EPA required Arizona to submit a SIP revision to identify and implement corrective PM_{10} control provisions in the Salt River Study Area and for similar significant sources in the Maricopa County PM_{10} nonattainment area.

Arizona's SIP revision was required to provide for attainment in the Salt River site no later than December 31, 2006, in accordance with CAA §189(b)(1)(A) and 188(e), and was required to include control strategies that meet the best available control measures (BACM) test and the most stringent measures (MSM) test for significant sources and source categories.

The Final Revised PM_{10} State Implementation Plan For The Salt River Area dated August 2004 constitutes Arizona's revisions to the State Implementation Plan for the Maricopa County PM_{10} serious nonattainment area and includes the following State Implementation Plan requirements, as described by the EPA in its Federal Register notice of disapproval (67 FR 44369, July 2, 2002):

- A modeling demonstration showing that the level of emissions reductions from application of BACM-MSM for all significant sources of PM_{10} will result in attainment of the 24-hour NAAQS by December 31, 2006, at the Salt River PM_{10} monitoring site, in accordance with CAA §189(b)(1)(A) and §188(e).

- Commitments to implement best available control measures (BACM)-most stringent measures (MSM) for sources significantly contributing to exceedances of the 24-hour PM_{10} standard in the Salt River area as expeditiously as possible (CAA §189(b)(1)(B)) and a commitment that all BACM and MSM control measures adopted and applied to sources in the Salt River Study Area will be applied to all similar sources throughout the Maricopa County PM_{10} serious nonattainment area.
- A demonstration that the plan constitutes Reasonable Further Progress (RFP) up to the attainment deadline - December 31, 2006.
- A demonstration that all the requirements of the federal Clean Air Act Amendments that pertain to serious PM_{10} nonattainment areas are met - including CAA §110(l), §110(a)(2)(E)(i), and 40 CFR §51.280 and §51.111).

For the Final Revised PM_{10} State Implementation Plan For The Salt River Area dated August 2004, ADEQ used the 2002 PM_{10} emissions data from the Maricopa County 2002 periodic PM_{10} emissions inventory, developed a base year emissions inventory from an extensive field study conducted between June 1, 2002 and December 31, 2002, and projected 2006 PM_{10} emissions.

The 2002 PM_{10} emissions data from the Maricopa County 2002 periodic PM_{10} emissions inventory used in the Final Revised PM_{10} State Implementation Plan For The Salt River Area dated August 2004 includes point, area, and nonroad mobile source emission estimates. In preparing the 2002 periodic PM_{10} emissions inventory, Maricopa County identified point, area, and nonroad mobile sources through its permit system database, 2002 annual emissions reports, Maricopa County investigation reports, permit files and logs, or telephone contacts with sources. In addition, Maricopa County reviewed the Maricopa County Air Quality Permit system to locate sources that were not included in the previous emission inventory and to identify sources that have ceased operations since the 1999 periodic inventory was compiled.

In addition to using the data from the Maricopa County 2002 periodic PM_{10} emissions inventory, ADEQ calculated gridded hourly emissions for four design days: January 8, 2002; April 15, 2002; April 26, 2002; and December 16, 2002. The design days were selected based on two separate meteorological constructs, each of which reflects different arrays of emissions sources and different levels of source significance: two days represent high PM_{10} concentrations experienced during days affected by low wind conditions and a thermal inversion (January 8, 2002 and December 16, 2002); two days represent high PM_{10} concentrations experienced during days affected by periodic wind speeds over 15 miles per hour (April 15, 2002 and April 16, 2002).

The base year emissions inventory used for the Final Revised PM_{10} State Implementation Plan For The Salt River Area dated August 2004 was developed as the result of an extensive field study, conducted between June 1, 2002 and December 31, 2002. The study focused on identifying the locations of activities in the Salt River study area that generate fugitive dust. Satellite image analysis and observation of the Salt River study area resulted in the identification of general

categories of PM_{10} emissions sources, which were subsequently input into ADEQ's GRIDTEST emissions model for the development of source hourly emissions by grid.

The locations and types of fugitive dust generating activities that were observed during the Salt River study were mapped and the relative contributions of the types of fugitive dust sources observed during the Salt River study were graphed. The graphs show contributions attributed to vehicle material transport at construction and industrial sites; contributions attributed to trackout at construction, industrial, and private sources; and contributions attributed to unpaved hauling observations at industrial and construction sources.

After having evaluated the 2002 PM_{10} emissions data from the Maricopa County 2002 periodic PM_{10} emissions inventory and after having developed a base year emissions inventory from an extensive field study, ADEQ reviewed rules and regulations from other jurisdictions across the United States and identified those requirements that were more stringent than requirements currently required by Arizona rules (i.e., best available control measures (BACM) and most stringent measures (MSM)). When competing or similar control measures or work practice standards were deemed BACM or MSM in various parts of the country, ADEQ was allowed some flexibility to determine which control measures to choose.

ADEQ did not make determinations upon whether or not the emissions from a single source or individual activities at a source were considered to be significant or not. According to the modeling analysis presented in the Proposed Revised PM_{10} State Implementation Plan (SIP) For The Salt River Area Technical Support Document, a series of emissions sources were identified as being significant contributors to the overall nonattainment of the study area. While every facility, when considered independently of the sources surrounding it, should be capable of demonstrating compliance with State and County air quality standards, those sources, when considered collectively, contribute to the overall nonattainment of the study area. In the Proposed Revised PM_{10} State Implementation Plan (SIP) For The Salt River Area Technical Support Document, ADEQ has made the demonstration that when all of the proposed control measures and work practice standards are applied collectively, the ambient concentrations of PM_{10} in the study area will demonstrate compliance with the national ambient air quality standards for PM_{10} by 2006.

ADEQ projected that the following emissions source categories would show a change in emissions between 2002 and 2006, due to implementing best available control measures (BACM) and most stringent measures (MSM) for sources significantly contributing to exceedances of the 24-hour PM_{10} standard in the Salt River area: agricultural tillage, construction activity, freeway traffic, primary and secondary road traffic, unpaved parking lots, unpaved road shoulders, wind erosion on agricultural land, wind erosion on construction sites, wind erosion on vacant lots and disturbed areas.

Maricopa County revisied Rule 316 in order to incorporate best available control measures (BACM) and most stringent measures (MSM) as described in the Final Revised PM_{10} State

Implementation Plan For The Salt River Area dated August 2004. In order to reduce emissions from nonmetallic mineral processing plants, asphaltic concrete plants, concrete plants and/or bagging operations, and/or rock product plants, the revisions to Rule 316 include process controls (i.e., enclosures, watering systems, operational overflow warning systems/devices, and fabric filter baghouses), process emission limitations (i.e., stack emissions limitations), fugitive dust emission limitations (i.e., 20% opacity limit, 0% opacity limit at the property line, silt loading limit, silt content limit, and stabilization standards), and fugitive dust control measures (i.e, during a wind event, for open storage piles and material handling, haul/access roads, on-site traffic, off-site traffic, trackout, spillage, and night-time operations).

The revisions to Rule 316 include adding Section 306-Fugitive Dust Emission Limitations. Section 306 includes fugitive dust emission limitations for the following: (1) 20% Opacity Limitation; (2) Visible Emission Limitation Beyond Property Line; (3) Wind Event; (4) Silt Loading And Silt Content Standards For Unpaved Internal Roads And Unpaved Parking And Staging Areas; and (5) Stabilization Standards.

The revisions to Rule 316 also include adding Section 307-Fugitive Dust Control Measures. Section 307 includes fugitive dust control measures for the following: (1) Open Storage Piles And Material Handling; (2) Surface Stabilization Where Support Equipment And Vehicles Operate; (3) Haul/Access Roads; (4) On-Site Traffic; (5) Off-Site Traffic; (6) Trackout; (7) Pad Construction For Processing Equipment; (8) Spillage; and (9) Night-Time Operations.

Section By Section Explanation Of Changes:

Title	This revision deletes "Mining And" from the title of Rule 316. With this deletion, the title of Rule 316 is "Nonmetallic Mineral Processing". By definition, "nonmetallic mineral processing" includes "mining/excavating", therefore, deleting "mining" from the title deletes a redundancy.
Section 101	This revision deletes "mining operation" and “or” and adds "mineral processing plant" and “and/or”.
Section 102	This revision deletes "mining" and “operation” and adds "processing plant", and "processing”.
Section 200	This revision deletes "For the purpose of this rule, the following definitions shall apply" and adds "See Rule 100 (General Provisions And Definitions) of these rules for definitions of terms that are used but not specifically defined in this rule. For the purpose of this rule, the following definitions shall apply".
Section 201	This revision adds "excavates and" to the definition of affected operation.
Section 202	This revision adds the definition of aggregate truck. Definition of aggregate truck matches South Coast’s Rule 1157 (PM_{10} Emission Reductions From Aggregate And Related Operations) adopted January 7, 2005.

Section 204	This revision adds the definition of area accessible to the public. Definition of area accessible to the public matches Rule 310 (Fugitive Dust): Any retail parking lot or public roadway that is open to public travel primarily for the purposes unrelated to the dust generating operation.
Section 207	This revision adds the definition of batch truck: Any truck that loads and transports products produced by batch.
Section 209	This revision adds the definition of berms and guard rails. Definition of berms and guard rails matches 30 Code Of Federal Regulations (CFR) 56.9300: A pile or mound of material along an elevated roadway capable of moderating or limiting the force of a vehicle in order to impede the vehicle's passage over the bank of the roadway.
Section 210	This revision adds the definition of bulk material. Definition of bulk material matches Rule 310 (Fugitive Dust): Any material, including, but not limited to, earth, rock, silt, sediment, sand, gravel, soil, fill, aggregate less than two inches in length or diameter (i.e., aggregate base course (ABC)), dirt, mud, demolition debris, cotton, trash, cinders, pumice, saw dust, feeds, grains, fertilizers, fluff (from shredders), and dry concrete, that are capable of producing fugitive dust.
Section 211	This revision adds the definition of cohesive hard surface: Any material, including but not limited to, pavement, recycled asphalt mixed with a binder, or a dust suppressant other than water applied and maintained as a roadway surface.
Section 213	This revision deletes "pneumatic" and adds "pressure control" to the definition of conveying system.
Section 215	This revision deletes the definition of particulate matter and adds the definition of disturbed surface area. Definition of disturbed surface area matches Rule 310 (Fugitive Dust): A portion of the earth's surface (or material placed thereupon) which has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed native condition, thereby increasing the potential for the emission of fugitive dust.
Section 217	This revision adds the definition of dust generating operation. Definition of dust generating operation matches Rule 310 (Fugitive Dust): Any activity capable of generating fugitive dust, including but not limited to, land clearing, earthmoving, weed abatement by discing or blading, excavating, construction, demolition, bulk material handling, storage and/or transporting operations, vehicle use and movement, the operation of any outdoor equipment, or unpaved parking lots. For the purpose of this rule, landscape maintenance and

playing on or maintaining a field used for non-motorized sports shall not be considered a dust generating operation. However, landscape maintenance shall not include grading, trenching, or any other mechanized surface disturbing activities performed to establish initial landscapes or to redesign existing landscapes.

Section 218 This revision adds the definition of dust suppressant. Definition of dust suppressant matches Rule 310 (Fugitive Dust): Water, hygroscopic material, solution of water and chemical surfactant, foam, non-toxic chemical stabilizer, or any other dust palliative, which is not prohibited for ground surface application by the EPA or the Arizona Department Of Environmental Quality (ADEQ), or any applicable law, rule, or regulation, as a treatment material for reducing fugitive dust emissions.

Section 220 This revision adds the definition of end of work day. Definition of end of work day matches South Coast's Rule 1157 (PM_{10} Emission Reductions From Aggregate And Related Operations) adopted January 7, 2005.

Section 221 This revision adds the definition of fabric filter baghouse: Tube-shaped filter bags/Long small-diameter fabric tubes referred to as "bags" arranged in parallel flow paths designed to separate particles and flue gas.

Section 222 This revision adds the definition of freeboard. Definition of freeboard matches Rule 310 (Fugitive Dust): The vertical distance between the top edge of a cargo container area and the highest point at which the bulk material contacts the sides, front, and back of a cargo container area.

Section 223 This revision adds the definition of fugitive dust control measure: A technique, practice, or procedure used to prevent or minimize the generation, emission, entrainment, suspension, and/or airborne transport of fugitive dust.

Section 224 This revision adds the definition of Fugitive Dust Control Technician: A person with authority to expeditiously employ sufficient fugitive dust control measures to ensure compliance with Rule 316 of these rules at an active operation.

Section 225 This revision deletes "that is", "and" and "released to and suspended" and adds "that", "entrained", and "and is caused from human and/or natural activities".

Section 226 This revision adds the definition of geotextile. Definition of geotextile matches South Coast's Rule 1157 (PM_{10} Emission Reductions From Aggregate And Related Operations) adopted January 7, 2005.

Section 228	This revision adds the definition of haul/access road. Definition of haul/access road matches South Coast's Rule 1157 (PM_{10} Emission Reductions From Aggregate And Related Operations) adopted January 7, 2005.
Section 229	This revision adds the definition of haul truck. Definition of haul truck matches Rule 310 (Fugitive Dust): Any fully or partially open-bodied self-propelled vehicle including any non-motorized attachments, such as but not limited to, trailers or other conveyances that are connected to or propelled by the actual motorized portion of the vehicle used for transporting bulk materials.
Section 230	This revision adds the definition of infrequent operations. Definition of infrequent operations matches South Coast's Rule 1157 (PM_{10} Emission Reductions From Aggregate And Related Operations) adopted January 7, 2005.
Section 231	This revision adds the definition of material delivery truck: Any truck that loads and transports product to customers.
Section 232	This revision adds the definition of mixer truck. Definition of mixer truck matches South Coast's Rule 1157 (PM_{10} Emission Reductions From Aggregate And Related Operations) adopted January 7, 2005.
Section 233	This revision adds the definition of motor vehicle. Definition of motor vehicle matches Rule 310 (Fugitive Dust): A self-propelled vehicle for use on the public roads and highways of the State Of Arizona and required to be registered under the Arizona State Uniform Motor Vehicle Act, including any non-motorized attachments, such as but not limited to, trailers or other conveyances which are connected to or propelled by the actual motorized portion of the vehicle.
Section 234	This revision adds the definition of new facility: A facility subject to this rule that has not been mined or excavated by such facility prior to June 8, 2005.
Section 237	This revision adds the definition of open areas and vacant lots. Definition of open areas and vacant lots matches Rule 310 (Fugitive Dust).
Section 238	This revision adds the definition of open storage pile. Definition of open storage pile matches Rule 310 (Fugitive Dust). According to this definition, an open storage pile is considered an open storage pile when the material that makes-up the open storage pile has 5% or greater silt content. Basically, silt content (particles equal to or less than 75 micrometers in diameter) is determined by measuring the portion of dry aggregate material

that passes through a 200-mesh screen, using ASTM Method C136-01. Appendix C (Fugitive Dust Test Methods) of the Maricopa County Air Pollution Control Regulations explains ASTM Method C136-01, the procedure for determining silt content. Maricopa County will, however, write a guidance to better explain how to determine silt content.

Section 239 This revision adds the definition of overburden operation: An operation that removes and/or strips soil, rock, or other materials that lie above a natural nonmetallic mineral deposit and/or in-between a natural nonmetallic mineral deposit.

Section 241 This revision adds the definition of pave: To apply and maintain asphalt, concrete, or other similar material to a roadway surface (i.e., asphaltic concrete, concrete pavement, chip seal, or rubberized asphalt mixed with a binder).

Section 242 This revision adds the definition of Portland Cement Plant: Any facility that manufactures Portland Cement using either a wet or dry process.

Section 243 This revision adds the definition of pressure control system: System in which loads are moved in the proper sequence, at the correct time, and at the desired speed through use of valves that control the direction of air flow, regulate actuator speed, and respond to changes in air pressure.

Section 246 This revision adds the definition of production work shift. Definition of production work shift matches South Coast's Rule 1157 (PM_{10} Emission Reductions From Aggregate And Related Operations) adopted January 7, 2005.

Section 247 This revision adds the definition of public roadways. Definition of public roadways matches Rule 310 (Fugitive Dust): Any roadways that are open to public travel.

Section 248 This revision adds the definition of returned products. Definition of returned products matches South Coast's Rule 1157 (PM_{10} Emission Reductions From Aggregate And Related Operations) adopted January 7, 2005:

Section 249 This revision adds the definition of rumble grate. Definition of rumble grate matches South Coast's Rule 1157 (PM_{10} Emission Reductions From Aggregate And Related Operations) adopted January 7, 2005.

Section 251 This revision adds the definition of silt. Definition of silt matches Rule 310 (Fugitive Dust): Any aggregate material with a particle size less than 75 micrometers in diameter, which passes through a No. 200 Sieve.

Section 252 This revision adds the definition of spillage: Any quantity of nonmetallic minerals/materials that spill while being processed or after having been

processed by an affected operation, where such spilled nonmetallic minerals/materials can generate or cause fugitive dust emissions.

Section 254 This revision adds the definition of staging area. Definition of staging area matches South Coast's Rule 1157 (PM_{10} Emission Reductions From Aggregate And Related Operations) adopted January 7, 2005.

Section 256 This revision adds the definition of temporary facility: A facility that occupies a designated site for not more than 180 days in a calendar year.

Section 257 This revision adds the definition of trackout. Definition of trackout matches Rule 310 (Fugitive Dust): Any and all bulk materials that adhere to and agglomerate on the surfaces of motor vehicles, haul trucks, and/or equipment (including tires) and that have fallen or been deposited onto a paved areas accessible to the public.

Section 258 This revision adds the definition of trackout control device: A gravel pad, grizzly, wheel washer, rumble grate, paved area, truck washer, or other equivalent trackout control device located at the point of intersection of an unpaved area and a paved area accessible to the public that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of aggregate trucks, haul trucks, and/or motor vehicles that traverse a facility.

Section 261 This revision adds the definition of truck washer. Definition of truck washer matches South Coast's Rule 1157 (PM_{10} Emission Reductions From Aggregate And Related Operations) adopted January 7, 2005.

Section 262 This revision adds the definition of unpaved road. Definition of unpaved road matches South Coast's Rule 1157 (PM_{10} Emission Reductions From Aggregate And Related Operations) adopted January 7, 2005.

Section 263 This revision adds the definition of urban or suburban area. Definition of urban or suburban area matches Rule 310 (Fugitive Dust): The definition of urban or suburban area is included in Section 231 (Definition Of Open Areas And Vacant Lots) of this rule.

Section 265 This revision adds the definition of wheel washer. Definition wheel washer matches South Coast's Rule 1157 (PM_{10} Emission Reductions From Aggregate And Related Operations) adopted January 7, 2005.

Section 266 This revision adds the definition of wind-blown dust. Definition of wind-blown dust matches Rule 310 (Fugitive Dust): Visible emissions, from any disturbed surface area, that are generated by wind action alone.

Section 267 This revision adds the definition of wind event. Definition of wind event matches Rule 310 (Fugitive Dust): When the 60-minute average wind speed

	is greater than 25 miles per hour. Typically, a wind speed of 15 miles per hour is sufficient to create fugitive dust. According to the definition, a wind speed of 25 miles per hour is a “wind event” and, in order to have an affirmative defense against a violation of Rule 316, fugitive dust control measures must be implemented during a “wind event”.
Section 301	This revision deletes "Limitations" and "No person shall discharge or cause or allow to be discharged into the ambient atmosphere" and adds "Nonmetallic Mineral Processing Plants-Process Emission Limitations And Controls".
Section 301.1	This revision adds “Process Emission Limitations: The owner and/or operator of a nonmetallic mineral processing plant shall not discharge or cause or allow to be discharged into the ambient air”.
Section 301.1(a)	This revision adds "grains/dry standard cubic foot" and "Such stack emissions shall be vented to a properly sized fabric filter baghouse".
Section 301.2	This revision adds “Controls: For crushing and screening facilities, the owner and/or operator of a nonmetallic mineral processing plant shall implement all of the following process controls: a. Enclose sides of all shaker screens; b. Permanently mount watering systems (e.g., spray bars or an equivalent control) on: (1) Inlet and outlet of all crushers; (2) Outlet of all shaker screens; and (3) Outlet of all material transfer points, excluding wet plants”.
Section 302	This revision deletes "Limitations" and "No person shall discharge or cause or allow to be discharged into the ambient air" and adds “Asphaltic Concrete Plants-Process Emission Limitations And Controls”.
Section 302.1	This revision deletes “Stack emissions exceeding 20% opacity and containing more than 0.04 gr/dscf (90 mg/dscm) of particulate matter” and adds “Process Emission Limitations: The owner and/or operator of an asphaltic concrete plant shall not discharge or cause or allow to be discharged into the ambient air: a. For non-rubberized asphaltic concrete plants, stack emissions exceeding 5% opacity and containing more than 0.04 gr/dscf (90 mg mg/dscm) of particulate matter over a 6-minute period. b. For rubberized asphaltic concrete plants (when producing rubberized asphalt only), stack emissions exceeding 20% opacity and containing more than 0.04 gr/dscf (90 mg mg/dscm) of particulate matter over a 6-minute period. c. From all cement, lime, and/or fly-ash storage silo(s), fugitive dust emissions exceeding 20% opacity”.

Section 302.2 This revision deletes "Fugitive dust emissions exceeding 20% opacity from any other affected operation or process source" and adds "Controls: The owner and/or operator of an asphaltic concrete plant shall implement all of the following process controls: a. On all cement, lime, and/or fly-ash storage silo(s), install an operational overflow warning system/device. The system/device shall be designed to alert operator(s) to stop the loading operation when the cement, lime, and/or fly-ash storage silo(s) are reaching a capacity that could adversely impact pollution abatement equipment. b. On all existing cement, lime, and/or fly-ash storage silo(s), install a properly sized fabric filter baghouse, with an opacity limit of not greater than 5% over a 6-minute period. c. On all new cement, lime, and/or fly-ash storage silo(s), install a properly sized fabric filter baghouse or equivalent device designed to meet a maximum outlet grain loading of 0.01 gr/dscf, with an opacity limit of not greater than 5% over a 6-minute period. d. From all drum dryers, control and vent exhaust to a properly sized fabric filter baghouse, with an opacity limit of not greater than 5% over a 6-minute period".

Section 303 This revision deletes "Limitations Concrete Plants And Bagging Operations: No person shall discharge or cause or allow to be discharged into the ambient air" and adds "Concrete Plants And/Or Bagging Operations-Process Emission Limitations And Controls".

Section 303.1 This revision deletes "Stack emissions exceeding 7% opacity and adds "Process Emission Limitations: The owner and/or operator of a concrete plant and/or bagging operation shall not discharge or cause or allow to be discharged into the ambient air: a. Stack emissions exceeding 7% opacity. b. Fugitive dust emissions exceeding 10% opacity from any affected operation or process source, excluding truck dumping directly into any screening operation, feed hopper, or crusher. c. Fugitive dust emissions exceeding 20% opacity from truck dumping directly into any screening operation, feed hopper, or crusher".

Section 303.2 This revision deletes "Fugitive dust emissions exceeding 20% opacity from truck dumping directly into any screening operation, feed hopper, or crusher" and adds "Controls: The owner and/or operator of a concrete plant and/or bagging operation shall implement the following process sources: a. On all cement, lime, and/or fly-ash storage silo(s), install an operational overflow warning system/device. The system/device shall be designed to alert operator(s) to stop the loading operation when the cement, lime, and/or fly-ash storage silo(s) are reaching a capacity that could adversely impact pollution

	abatement equipment. b. On existing cement, lime, and/or fly-ash storage silo(s), install a properly sized fabric filter baghouse, with an opacity limit of not greater than 5% over a 6-minute period. c. On new cement, lime, and/or fly-ash storage silos, install a properly sized fabric filter baghouse or equivalent device designed to meet a maximum outlet grain loading of 0.01 gr/dscf. d. On dry mix concrete plant loading stations/truck mixed product, implement one of the following process controls: (1) Install a rubber fill tube; (2) Install a water spray; (3) Install a properly sized fabric filter baghouse or delivery system; (4) Enclose mixer loading stations such that no visible emissions occur; or (5) Conduct mixer loading stations in an enclosed process building such that no visible emissions from the building occur during the mixing activities. e. On cement silo filling processing/loading operations controls, install a pressure control system designed to shut-off cement silo filling processes/loading operations, if pressure from delivery truck is excessive, as defined in O&M Plan”.
Section 304	This revision deletes "Limitations", "activities", and "mining and" and adds "affected operations or process sources” and “all other fugitive dust emission limitations not specifically listed in Section 306 of this rule, all other fugitive dust control measures not specifically listed in Section 307 of this rule, and all overburden operations”.
Section 305	This revision deletes "Requirement For", "Monitoring Equipment", and "For the purpose of this rule, an emission control system (ECS) is a system for reducing emissions of particulates, consisting of both collection and control devices, which are approved in writing by the Control Officer and are designed and operated in accordance with good engineering practices.” This text is already written in the Section 202 (Definition Of Approved Emission Control System).
Section 305.1(a)	This revision deletes "or" and adds "and/or".
Section 305.1(b)	This revision deletes "or" and "of” and adds "and/or" and “for”.
Section 305.1(c)	This revision deletes "or" and adds "and/or".
Section 305.2	This revision deletes "or" and "Plan" and adds "and/or" and "Plan(s)".
Section 305.3	This revision deletes "or", "subsection 305.1", and “or” and adds "and/or" and "Section 305.1".
Section 306	This revision adds Section 306 (Fugitive Dust Emission Limitations). Section 306 includes fugitive dust emission limitations for the following: (1) 20% Opacity Limitation; (2) Visible Emission Limitation Beyond Property Line; (3) Wind Event; (4) Silt Loading And Silt Content Standards

For Unpaved Internal Roads And Unpaved Parking And Staging Areas; and (5) Stabilization Standards. This revision addresses best available control measures (BACM) and most stringent measures (MSM) proposed in the Salt River PM_{10} State Implementation Plan (SIP) Revision.

Section 306.1 This revision adds a 20% opacity limitation.

Section 306.2 This revision adds a visible emission limitation beyond the property line. Fugitive dust emissions must not remain visible in the atmosphere beyond the property line of a facility. Such requirement is applicable to the source generating the fugitive dust emissions and/or to the property owner. In compliance determinations, the first effort is to obtain compliance with the source generating the fugitive dust emissions but may involve the property owner.

Section 306.3 This revision adds fugitive dust control measures for wind events.

Section 306.4 This revision adds silt loading and silt content standards for unpaved internal roads and unpaved parking and staging areas.

Section 306.5 This revision adds stabilization requirements for open storage piles and material handling and for surface soils where support equipment and vehicles operate in association with such facility.

Section 307 This revision adds Section 307 (Fugitive Dust Control Measures). Section 307 includes fugitive dust control measures for the following: (1) Open Storage Piles And Material Handling; (2) Surface Stabilization Where Support Equipment And Vehicles Operate; (3) Haul/Access Roads; (4) On-Site Traffic; (5) Off-Site Traffic; (6) Trackout; (7) Pad Construction For Processing Equipment; (8) Spillage; and (9) Night-Time Operations. This revision addresses best available control measures (BACM) and most stringent measures (MSM) proposed in the Salt River PM_{10} State Implementation Plan (SIP) Revision.

Section 307.1 This revision requires fugitive dust control measures to be implemented for open storage piles and material handling.

Section 307.2 This revision requires fugitive dust control measures to be implemented for surface soils where loaders, support equipment, and vehicles operate.

Section 307.3 This revision requires fugitive dust control measures to be implemented for haul/access roads.

Section 307.4 This revision requires all batch trucks and material delivery trucks to remain on paved surfaces or cohesive hard surfaces when entering, conducting primary functions in permanent areas (i.e., warehouse and maintenance areas, office areas, entrances to batch plants, concrete plant areas, and

asphaltic plant areas), and leaving the facility and requires that fugitive dust control measures be implemented when hauling and/or transporting bulk material on-site within the property line of a facility.

Section 307.5 This revision requires fugitive dust control measures to be implemented when hauling and/or transporting bulk material off-site.

Section 307.6 This revision requires fugitive dust control measures to be implemented for trackout.

Section 307.7 This revision requires fugitive dust control measures to be implemented during the construction of pads for processing equipment.

Section 307.8 This revision requires fugitive dust control measures to be implemented when spillage occurs.

Section 307.9 This revision requires fugitive dust control measures to be implemented for a facility operating at night.

Section 308 This revision adds a requirement that a facility with a rated or permitted capacity of 25 tons or more per hour of material have in place a Fugitive Dust Control Technician or his designee.

Section 309 This revision adds a requirement that a Dust Control Plan must be submitted to the Control Officer.

Section 401 This revision deletes "O&M Plan" and "Any owner or operator of a facility employing an ECS device as of April 21, 1999 to meet the requirement of this rule, shall file, by October 18, 1999, an O&M Plan with the Control Officer in accordance with subsection 501.3 of this rule" and adds "The newly amended provisions of this rule shall become effective upon adoption of this rule and the following schedule applies".

Section 401.1 This revision adds a compliance schedule for Dust Control Plans.

Section 401.2 This revision adds a compliance schedule for pressure control systems.

Section 401.3 This revision adds a compliance schedule for operational overflow warning systems/devices.

Section 401.4 This revision adds a compliance schedule for Fugitive Dust Control Technicians.

Section 401.5 This revision adds a compliance schedule for surface stabilization and/or paving where support equipment and vehicles operate.

Section 401.6 This revision adds a compliance schedule for trackout control - for installing rumble grates, wheel washers, or truck washers and for using PM_{10} efficient South Coast Air Quality Management Rule 1186-certified street sweepers. The compliance schedule for trackout control is longer than the compliance schedules to implement and/or to comply with other

measures associated with Rule 316, because there are a limited number of vendors and/or suppliers of trackout control devices and certified street sweepers in Maricopa County.

Section 501 This revision deletes "person" and adds "owner and/or operator of a facility".

Section 501.2(a) This revision deletes "plant" and "hours of operation; type of batch operation (wet, dry, central); throughput per day of basic raw materials including sand, aggregate, cement, (tons/day); volume of concrete and asphaltic concrete produced per day; volume of aggregate mined per day (cu. yds./day); composition of a cubic yard of concrete produced (percent cement, sand, aggregate, admixture, water, fly ash, etc.); composition of a cubic yard of asphaltic concrete produced (percent cement, sand, aggregate, gypsum, admixture, water, fly ash, etc.); amount of each basic raw material including sand, aggregate, cement, fly ash delivered per day (tons/day)" (these items are listed separately in Sections 501.2(a)(1) - 501.2(a)(6)) and adds "facility" and "all of".

Section 501.2(a)(1)-(6)This revision lists items that have been deleted from Section 501.2(a).

Section 501.2(b) This revision deletes “Plants” and "The number of bags of dry mix produced per day; weight (size) of bags of dry mix produced per day; kind and amount of fuel consumed in dryer (cu. ft./day or gals./day); kind and amount of any back-up fuel (if any)" (these items are listed separately in Sections 501.2(b)(1) - 501.2(b)(4)) and adds “Bagging Operations” and "Records shall include all of the following".

Sections 501.2(b)(1)-(4)This revision lists items that have been deleted from Section 501.2(b).

Section 501.2(c) This revision deletes "Baghouse records shall include dates of inspection, dates and designation of bag replacement, dates of service or maintenance, related activities, static pressure gauge (manometer) hourly readings. Scrubber records shall include dates of service or maintenance related activities; the scrubbing liquid flow rate; the pressure or head loss; and/or any other operating parameters which need to be monitored to assure that the scrubber is functioning properly and operating within design parameters. Records of time, date and cause of all control device failure and down time shall also be maintained" (these items are listed separately in Sections 501.2(c)(1) and 501.2(c)(2)) and adds "Records shall include all of the following".

Section 501.2(c)(1)-(2)This revision lists items that have been deleted from Section 501.2(c).

Section 501.3	This revision deletes "or" and "a record of the periods of time than an approved ECS is used to comply with this rule. Key system parameters, such as flow rates, pressure drops, and other conditions necessary to determine if the control equipment is functioning properly, shall be recorded in accordance with the approved O&M Plan. The records shall account for any periods when the control system was not operating. The owner or operator of a facility shall also maintain results of the visual inspection and shall record any corrective action taken, if necessary" (these items are listed separately in Sections 501.3(a) - 501.3(g)) and adds "and/or" and "all of the following records in accordance with an approved O&M Plan".
Sections 501.3(a)-(g)	This revision lists items that have been deleted from Section 501.3.
Section 501.4	This revision adds recordkeeping and reporting requirements for Dust Control Plans.
Section 502	This revision deletes "July 1, 1998" and "Code Of Federal Regulations" and adds "July 1, 2003" and "40 Part 60, Appendix A-Test Methods Adopted By Reference".
Section 502.2	This revision deletes "techniques specified in EPA Reference Method 9, 40 CFR Part 60, Appendix A, except the opacity observations for intermittent visible emissions shall require 12 (rather than 24) consecutive readings at 15 second intervals" and adds "test methods described in Appendix C (Fugitive Dust Test Methods) of these rules".
Section 503	This revision adopts by reference the soil moisture and soil compaction characteristics test methods.
Section 504	This revision adopts by reference the stabilization standards test methods.
Section 505	This revision adopts by reference the list of street sweeping equipment that has met the South Coast's Rule 1186 certification standards.

7. Demonstration of compliance with A.R.S. §49-112:

Under ARS §49-479(c), a county may not adopt a rule that is more stringent than the rules adopted by the director of the Arizona Department of Environmental Quality (ADEQ) for similar sources unless it demonstrates compliance with the requirements of ARS §49-112. Under ARS §49-112 (A):

> When authorized by law, a county may adopt a rule, ordinance, or other regulation that is more stringent than or in addition to a provision of this title or rule adopted by the director or any board or commission authorized to adopt rules pursuant to this title if all the following conditions are met:

1. The rule, ordinance or other regulation is necessary to address a peculiar local condition;
2. There is credible evidence that the rule, ordinance or other regulation is either:
   (a) Necessary to prevent a significant threat to public health or the environment that results from a peculiar local condition and is technically and economically feasible
   (b) Required under a federal statute or regulation, or authorized pursuant to an intergovernmental agreement with the federal government to enforce federal statutes or regulations if the county rule, ordinance or other regulation is equivalent to federal statutes or regulations.

Maricopa County is the only PM_{10} serious nonattainment area in Arizona, consequently stronger regulations must be adopted in this area to address a serious health threat. Because of this, the revisions in Rule 316 comply with ARS §49-112(A)(1). Additionally, because Rule 316 is part of the Arizona State Implementation Plan for the control of PM_{10}, Rule 316 is federally enforceable and changes are required under 40 Code Of Federal Regulations (CFR) 51.120(c)(102) to effect enforceable commitments made by Maricopa County. Therefore, the revisions to Rule 316 have been made pursuant to ARS §49-112(2). Also, Maricopa County revised Rule 316 in order to address a peculiar local condition: the designation of Maricopa County as a serious nonattainment area for PM_{10} and to incorporate best available control measures (BACM) and most stringent measures (MSM) as described in the Final Revised PM_{10} State Implementation Plan For The Salt River Area dated August 2004.

In July 2002, the Environmental Protection Agency granted Arizona's request to extend the Clean Air Act deadline for attainment of the annual and 24-hour PM_{10} standards from 2001 to 2006. With of this deadline extension, Arizona is required to submit to the Environmental Protection Agency a revised PM_{10} State Implementation Plan. The revised PM_{10} State Implementation Plan must include control strategies that meet the best available control measures (BACM) test and the most stringent measures (MSM) test for significant sources and source categories and that demonstrate attainment of the 24-hour federal standard for coarse particulate matter air pollution by December 31, 2006. In addition, the Environmental Protection Agency requires that best available control measures (BACM) and the most stringent measures (MSM) be applied to similar sources throughout the Maricopa County serious PM_{10} nonattainment area. The revisions to Rule 316 meet such requirements.

The revisions to Rule 316 include adding Section 306-Fugitive Dust Emission Limitations. Section 306 includes fugitive dust emission limitations for the following: (1) 20% Opacity Limitation; (2) Visible Emission Limitation Beyond Property Line; (3) Wind Event; (4) Silt

Loading And Silt Content Standards For Unpaved Internal Roads And Unpaved Parking And Staging Areas; and (5) Stabilization Standards.

The revisions to Rule 316 also include adding Section 307-Fugitive Dust Control Measures. Section 307 includes fugitive dust control measures for the following: (1) Open Storage Piles And Material Handling; (2) Surface Stabilization Where Support Equipment And Vehicles Operate; (3) Haul/Access Roads; (4) On-Site Traffic; (5) Off-Site Traffic; (6) Trackout; (7) Pad Construction For Processing Equipment; (8) Spillage; and (9) Night-Time Operations.

8. A reference to any study relevant to the rule that the agency reviewed and either proposes to rely on in its evaluation of or justification for the rule:

- Final Revised PM_{10} State Implementation Plan For The Salt River Area, Air Quality Division, Arizona Department Of Environmental Quality dated August 2004 and the Revised PM_{10} State Implementation Plan For The Salt River Area-Technical Support Document dated October 2004. Available for review at: http://www.adeq.state.az.us/environ/air/plan/download/proposedsip.pdf
  Or contact: Diane Arnst, Arizona Department Of Environmental Quality, Mailcode: 3415A-3, ADEQ Central Office, 1110 West Washington Street, Phoenix, Arizona 85007, 602.771.2375
- South Coast AQMD Proposed Rule 1157 Emission Inventory Analysis. Prepared for Southern California Rock Products Association. Prepared by West Coast Environmental And Engineering dated January 7, 2005. Available for review at: Maricopa County Air Quality Department, 1001 North Central Avenue #695, Phoenix, Arizona 85004, 602.506.6710
- South Coast Air Quality Management District final staff report and final socioeconomic report for proposed Rule 1157 (PM_{10} Emission Reductions From Aggregate And Related Operations) dated December 2004. Available for review at: Maricopa County Air Quality Department, 1001 North Central Avenue #695, Phoenix, Arizona 85004, 602.506.6710
- Maricopa County Air Quality Department 2002 Periodic PM_{10} Emissions Inventory dated June 2004. Available for review at: http://www.maricopa.gov/aq/default.asp
- Final BACM Technological And Economic Feasibility Analysis prepared by Sierra Research, Inc. for San Joaquin Valley Unified Air Pollution Control District dated March 21, 2003. Available for review at: Maricopa County Air Quality Department, 1001 North Central Avenue #695, Phoenix, Arizona 85004, 602.506.6710
- Impact Of The Rock Products Industry On The Arizona Economy, dated January 2002. Available for review at: http://www/azrockproducts.org/pdf/Impact_Report%202002.pdf
- Impact Of The Rock Products Industry On The Arizona Economy, dated October 2003. Available for review at: http://www.azrockproducts.org
- Particulate Control Measure Feasibility Study-Final Report prepared for the Maricopa County Association Of Governments dated January 24, 1997. Available for review at: Maricopa

County Air Quality Department, 1001 North Central Avenue #695, Phoenix, Arizona 85004, 602.506.6710

9. Summary of the economic, small business, and consumer impact:

This summary of the impact of Rule 316 revisions on the economy, small businesses, and the consumers of Maricopa County is organized as follows:

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Background To Determining Economic Impact Of Rule 316 Revisions

In July 2002, the Environmental Protection Agency (EPA) granted Arizona's request to extend the Clean Air Act deadline for attainment of the annual and 24-hour PM_{10} standards from 2001 to 2006. With of this deadline extension, Arizona is required to submit to the EPA a revised

PM_{10} State Implementation Plan. The revised PM_{10} State Implementation Plan must include control strategies that meet the best available control measures (BACM) test and the most stringent measures (MSM) test for significant sources and source categories and that demonstrate attainment of the 24-hour federal standard for coarse particulate matter air pollution by December 31, 2006. In addition, the EPA requires that best available control measures (BACM) and the most stringent measures (MSM) be applied to similar sources throughout the Maricopa County serious PM_{10} nonattainment area.

The best available control measures (BACM) analysis and the most stringent measures (MSM) analysis required by the EPA's extension of the PM_{10} standards forced the Arizona Department Of Environmental Quality (ADEQ) to review rules and regulations from other jurisdictions across the United States and incorporate those requirements identified as more stringent than current control measures required by local rules. When competing or similar control measures or work practice standards were deemed BACM or MSM in various parts of the country, ADEQ was allowed some flexibility to determine which control measure/control measures to choose.

ADEQ did not make determinations upon whether or not the emissions from a single source or individual activities at a source were considered to be significant or not. According to the modeling analysis presented in the Proposed Revised PM_{10} State Implementation Plan (SIP) For The Salt River Area Technical Support Document, a series of emissions sources were identified as being significant contributors to the overall nonattainment of the study area. While every facility, when considered independently of the sources surrounding it, should be capable of demonstrating compliance with State and County air quality standards, those sources, when considered collectively, contribute to the overall nonattainment of the study area. In the Proposed Revised PM_{10} State Implementation Plan (SIP) For The Salt River Area Technical Support Document, ADEQ has made the demonstration that when all of the proposed control measures and work practice standards are applied collectively, the ambient concentrations of PM_{10} in the study area will demonstrate compliance with the national ambient air quality standards for PM_{10} by 2006.

Maricopa County revised Rule 316 in order to incorporate best available control measures (BACM) and most stringent measures (MSM) as described in the Final Revised PM_{10} State Implementation Plan For The Salt River Area dated August 2004. With the revisions to Rule 316, Rule 316 requires compliance with emission limitations and the implementation of process controls and fugitive dust control measures for nonmetallic mineral processing plants, asphaltic concrete plants, and concrete plants and/or bagging operations.

According to Impact Of The Rock Products Industry On The Arizona Economy dated January 2002, the highest quality sand and gravel is located in river beds, within flood plains, and close to growing metropolitan areas, with nearly equal amounts of sand and gravel and relatively small amounts of unusable materials. The primary uses for sand and gravel include:

- Concrete aggregate for buildings, dams, and airports (20%) (A 24-story office building requires 36,000 tons of sand and gravel, a regional retail center requires 100,000 tons of sand and gravel, and a typical 1,600 square foot house requires 100 tons of sand and gravel), highways (Each mile of urban freeway requires 400,000 tons of sand and gravel for pavement, pipes, drains, bridges, walls, and overpasses)
- Road base and coverings (17%) (The first 45 miles of metropolitan Phoenix freeway constructed during the on-going expansion program required 450 tons of cement, 1.8 million cubic yards of concrete, and 2.9 million tons of sand and gravel for pavement alone; The combined inner and outer loops of the fully completed freeway system will consume 92 million tons of sand and gravel and 20 million cubic yards of concrete)
- Asphaltic concrete aggregate (10%) (A typical cubic yard of asphalt weighs 3,959 pounds, of which 3,800 pounds is sand and gravel)
- Construction fill (9%)
- Concrete products such as blocks, bricks and pipes (2%) (A typical cubic yard of wet concrete weighs 3,975 pounds and is composed of 470 pounds of cement, 300 pounds (36 gallons) of water, 1,282 pounds of sand, and 1,923 pounds of gravel)
- Plaster and gunnite sands (2%)
- Numerous other uses such as railroad ballast and roofing materials (40%)

There are four major steps in sand and gravel mining: (1) site clearing, (2) mining, (3) processing (crushing, washing, blending materials), and (4) reclamation. Because of its heavy weight and high transportation costs, sand and gravel is always produced near the point of use. Therefore, the industry nationally and in Arizona is most active in rapidly expanding urban areas or where other large scale construction projects are underway.

General Process Description Of Nonmetallic Mineral Processing Plants And/Or Rock Product Plants

Nonmetallic mineral processing plants and/or rock product plants produce sand, gravel, crushed stones, quarried rocks, slag, and rock dust. Crushed stone might be composed of limestone, granite, and any other hard rocks that are produced by blasting and then crushing. Sand and gravel consist of unconsolidated granular materials found in natural deposits.

The processing of sand and gravel is different depending on the types of the products to be produced. Nonmetallic mineral processing plants and/or rock product plants can be classified into the following categories:

- Construction Sand And Gravel
- Industrial Sand And Gravel
- Concrete Batching
- Hot Mix Asphalt
- Batch Mix

- Parallel Flow Drum Mix
- Counterflow Drum Mix

The general process of each of these categories of nonmetallic mineral processing plants and/or rock product plants is described below:

Construction Sand And Gravel

Sand and gravel are usually mined in a moist or wet condition by open pit excavation or by dredging. Open pit excavation is carried out with front end loaders, bucket wheel excavators, or draglines. Mining by dredging is carried out with suction or bucket-type dredges that remove sand and gravel from the bottom of a lake or river.

After mining, sand and gravel are transported by conveyors, trucks, barges, or earth movers to the aggregate plants where they are either stockpiled or dumped into hoppers. Sand and gravel are then transported by belt conveyors, hydraulic pumps, or bucket elevators to scalping screens. Materials that pass through scalping screens are fed into sizing screens, which consist of either horizontal or sloped single or multi-deck vibrating screens. Oversize materials are directed to crushers for size reduction before returning to the screening process.

After screening, sized gravel is stockpiled and sand is directed to log washers or rotary scrubbers for the removal of clay and impurities. After scrubbing, sand is sized by water classification, and then dewatered by hydroseparators or separatory cones before being stockpiled.

Industrial Sand And Gravel

Industrial sand and gravel are mined from open pits of quartz-rich sand and sandstone. After mining, the materials are transported by trucks or conveyors to the aggregate plants where they are stockpiled and crushed. For primary and secondary crushing, gyratory crushers, jaw crushers, and impact mills are used. After crushing, the materials are further ground to smaller sizes (50 micrometers or smaller) by hammer mills or jet mills, and then classified by screening process(es).

After initial crushing and screening, industrial sand and gravel are washed and classified again before being scrubbed to remove surface stains and further deslimed. The purified sand is conveyed to drainage bins and is then dried in rotary dryers. After drying, industrial sand is cooled and classified again before being stockpiled or packaged for shipment

Concrete Batching

Concrete is mainly composed of water, cement, sand, and coarse aggregate. Mineral admixtures or pozzolans such as fly ash and ground granulated blast-furnace slag may be added to reduce permeability, increase strength, or influence other concrete properties. Chemical admixtures may also be added to entrain air or modify the setting rate. Typical equipment in a concrete batch plant includes conveyors, elevators, elevated storage bins and silos, weight hoppers, and mixers.

Approximately 75% of the U.S. concrete is produced at concrete batch plants. Many plants are located near aggregate sources; others may be temporarily set up near major job sites. At most

of the concrete batch plants, the above constituents are gravity fed (charged) from the weigh hoper into the mixer trucks, which mix the ingredients on the way to the job sites (dry batch operation). The concrete may also be charged into a central mix drum and transferred to a truck (wet batch operation). The remaining manufactured concrete includes concrete masonry and precast products, such as concrete bricks, paving stones, structural components, bridge girders, and panel for cladding.

Typical equipment in a concrete batch plant includes conveyors, elevators, elevated storage bins and silos, weight hoppers, and mixers.

The primary concern is particulate matter, mostly from cement dust. Cement is so fine that it contains approximately 150 billion particles per pound, about 10% to 20% of which are smaller than five microns in diameter. Dust may also come from pozzolan, sand, and aggregates. These dust particulates are generated during the transferring and mixing of materials, as well as from sand and aggregate open storage piles. The movement of heavy trucks on unpaved or dusty surfaces around the plants also generates dust. Typical dust controls at concrete batch plants may include water sprays, dust suppressants, hoods, and baghouses.

Hot Mix Asphalt

Hot mix asphalt is a mixture of size-graded, high quality aggregate, and, as a binder, liquid asphalt cement, which is heated and mixed in measured quantities. To produce good quality hot mix asphalt, certain amounts of fine aggregate less than 74 micrometers are required. Today, reclaimed asphalt pavement (RAP) is widely used in the mixture. Aggregate and RAP usually constitute over 92% by weight of the total mixture.

Hot mix asphalt is manufactured by batch mix, continuous mix, parallel flow drum mix, and counterflow drum mix plants, which can be permanent, skid-mounted, or portable. In 1996, there were approximately 2,300 batch plants and 1,000 parallel flow drum mix plants out of 3,600 estimated active hot mix asphalt plants in the United States, and they produced approximately 240 million tons and 260 million tons, respectively. Today, the majority is the counterflow drum mix plants (about 85%) while batch plants and parallel flow drum plants account for 10% and 5% of the total, respectively.

In general, at the hot mix asphalt plants, dust particulates are generated during conveying, screening, and mixing of materials, as well as from aggregate open storage piles. The movement of heavy trucks on unpaved or dusty surfaces around the plants also generates dust. Typical dust controls may include water sprays, hoods, enclosures, and baghouses.

Batch Mix

With the batch mix process, aggregate is dried by a rotary dryer. The hot aggregate is then screened, and according to its grade (size), is transferred to individual bins over a weight hopper. The aggregate with desired mix and weight is dry-mixed in a mixer (pug mill) for 6 seconds-10 seconds. The appropriate amount of liquid asphalt cement and RAP are transferred to the pug mill.

The total mixing time usually is less than 60 seconds. The hot mix is stored in a silo or transferred directly into an asphalt truck.

Parallel Flow Drum Mix

With the parallel flow drum mix process, the size-graded aggregate is transferred to the drum at the burner end. As the drum rotates, the aggregate and the combustion products move parallel toward the other end of the drum. Appropriate amount of liquid asphalt cement is introduced in the mixing zone located in the middle of the drum. The mixture is discharged at the end of the drum and is conveyed to either a surge bin or a silo for loading into a transport truck.

This mixing process captures a substantial amount of aggregate dust, therefore, lowering the load on the downstream PM_{10} collection equipment. As a result, only primary dust collection equipment such as baghouse is needed.

Counterflow Drum Mix

With the counterflow drum mix process, the aggregate flow in opposite direction to the exhaust gases. In addition, the liquid asphalt cement mixing zone is located behind a burner flame zone. As a result, this process is expected to generate less organic emissions compared to the parallel flow drum mix.

Maricopa County Emissions Estimates For Nonmetallic Mineral Processing Plants And/Or Rock Product Plants

The Maricopa County Air Quality Department has primary responsibility for preparing and submitting periodic PM_{10} emissions inventories for the Maricopa County PM_{10} nonattainment area. A periodic PM_{10} emissions inventory includes point, area, and nonroad mobile source emission estimates.

In June 2004, Maricopa County completed the 2002 periodic PM_{10} emissions inventory. In preparing the 2002 periodic PM_{10} emissions inventory, Maricopa County identified point, area, and nonroad mobile sources through its permit system database, 2002 annual emissions reports, Maricopa County investigation reports, permit files and logs, or telephone contacts with sources. In addition, Maricopa County reviewed the Maricopa County Air Quality Permit system to locate sources that were not included in the previous emission inventory and to identify sources that have ceased operations since the 1999 periodic inventory was compiled.

Point sources identified in the 2002 periodic PM_{10} emissions inventory that are subject to Rule 316 fall into six categories: (1) asphalt batch plant, (2) concrete batch plant (3) other, (4) sand and gravel, (5) storage piles, and (6) unpaved haul roads. PM_{10} emissions from trackout are not estimated as part of point source emissions inventories and, as a result, are not captured here. Maricopa County expects additional emission reductions from trackout after implementation of Rule 316 revisions; however, trackout emission reductions have not been quantified in this analysis. The table below lists the 2002 baseline emissions (tons per year), 2002 estimated

emissions (tons per year) post Rule 316 implementation, estimated emission reductions (tons per year), and percent emission reductions for these six categories.

Categories Of Sources Subject To Rule 316
As Identified In the Maricopa County 2002 Periodic PM_{10} Emissions Inventory

Source Category	2002 Baseline Emissions (Tons Per Year - TPY)	2002 Estimate Emissions Post Rule 316 Implementation (Tons Per Year - TPY)	Estimated Emission Reductions (Tons Per Year - TPY)	Percent Emission Reductions
Asphalt Batch Plant	16.2 tpy	15.4 tpy	0.9 tpy	5.3%
Concrete Batch Plant	103.7 tpy	101.0 tpy	2.7 tpy	2.6%
Other	7.2 tpy	7.1 tpy	0.0 tpy	0.7%
Sand And Gravel	56.8 tpy	56.8 tpy	0.0 tpy	0.0%
Storage Piles	45.6 tpy	43.6 tpy	2.1 tpy	4.6%
Unpaved Haul Roads	419.3 tpy	248.7 tpy	170.6 tpy	40.7%
Total	**648.9 tpy**	**472.6 tpy**	**176.3 tpy**	**27.2%**

Asphalt Batch Plant: A 5.3% reduction in PM_{10} emissions from asphalt batch plants is calculated assuming that installing/operating operational overflow warning systems/devices on baghouses on cement, lime, and/or flyash silos will increase the compliance rate from 90% to 95%.

Concrete Batch Plant: A 2.6% reduction in PM_{10} emissions from concrete batch plants is calculated assuming that installing/operating operational overflow warning systems/devices on baghouses on cement, lime, and/or flyash silos will increase the compliance rate for these operations from 90% to 95% and assuming the compliance rate from applying water on dry mix concrete loading stations/truck mixed product will increase the compliance rate from 77% to 80%.

Other (Includes unloading and material handling of clay from structural clay products and brick and structural clay tile facilities): A 0.7% reduction in PM_{10} emissions from other is calculated assuming a compliance rate from 77% to 80% from applying water during unloading, stockpiling, and conveyor transfer points increased.

Sand And Gravel: A 0.0% reduction in PM_{10} emissions from sand and gravel is calculated assuming a 90% compliance rate from applying water during sand and gravel transfer and pile forming activities and assuming a 99% compliance rate from venting stack emissions to a

baghouse are already in place and no increase in compliance rate will occur from Rule 316 revisions.

Storage Piles: A 4.6% reduction in PM_{10} emissions from storage piles is calculated assuming the compliance rate from maintaining stabilization standards (i.e., spraying material with water, spraying material with a dust suppressant other than water, maintaining a 1.5% or more soil moisture content of the storage piles, or locating storage piles in a pit/in the bottom of a pit) increased from 77% to 80%.

Unpaved Haul Roads: A 40.7% reduction in PM_{10} emissions from unpaved haul roads is calculated assuming a 94% control efficiency for the reported 50% vehicle miles traveled on paved surfaces or on a cohesive hard surface and assuming a 70% control efficiency for watering the other 50% of reported vehicles miles traveled. The reduction also includes an assumption that the compliance rate will increase from 60% to 80%.

Summary: Maricopa County estimates that a total of 176.3 tons per year of PM_{10} will be reduced based on Rule 316 revisions. Maricopa County expects additional emission reductions from Rule 316 trackout controls; however, these reductions have not been quantified and are not included in the 176.3 tons per year.

Fugitive Dust Control Measures For Nonmetallic Mineral Processing Plants And/Or Rock Product Plants

Fugitive dust control measures for nonmetallic mineral processing plants and/or rock product plants include, but are not limited to, the following:

- Applying Dust Suppressants
- Installing And Maintaining Rumbles Grates, Wheel Washers/Vehicle Washes, Truck Washers
- Installing And Maintaining Gravel Pads From Rumble Grates, Wheel Washers/Vehicle Washes, Truck Washers To Facility Exits
- Paving From Rumble Grates To Wheel Washers/Vehicle Washes
- Stabilizing Unpaved Haul/Access Roads And Facility Entries And Exits
- Stabilizing Open Storage Piles And Material Handling
- Ceasing Active Operations During A Wind Event
- Cleaning Paved Internal Roads

A description of how each of these fugitive dust control measures operate and/or function, an estimation of how much each of these fugitive dust control measures cost, and an estimation of how much PM_{10} emissions are expected to be reduced by implementing and/or operating each of these fugitive dust control measures, as required by Rule 316 revisions, are described on the following pages.

Also, following these descriptions are four tables that summarize estimated annual costs, capital costs, and emissions reduced (tons per year) for a large-sized facility, two medium-sized facilities, and a small-sized facility, after such facilities implement and/or operate the fugitive dust control measures required by Rule 316.

Applying Dust Suppressants

Dust suppressants work by either agglomerating the fine particles, adhering/binding the surface particles together, or increasing the density of the surface material. Dust suppressants reduce the ability of the surface particles to be lifted and suspended by either vehicle tires or wind. Selection of dust suppressants must include an understanding of not only the primary factors that generate dust (vehicle speed, number of wheels per vehicle, particle size distribution (gradation) of the surface material, and surface moisture) but also the long-term cost and environmental impacts of such dust suppressants. Long-term costs include application of dust suppressants in conjunction with the number of times the dust suppressant needs to be applied and the expected change in maintenance practices. Environmental considerations generally include impacts to water quality.

Traditional dust suppressants generally fall into the following categories: water-attracting chemicals, organic-non-bituminous chemicals, electro-chemical stabilizers, polymers, and microbiological binders. In addition to categories of dust suppressants, dust suppression is also categorized by dust suppression technology. Dust suppression technology includes wetting agents (surfactant formulations that improve the ability of water to wet and agglomerate fine particles), foaming agents, binding-agglomerating agents (water-based products applied as liquid sprays or foams and used when it is either impractical or uneconomical to control dust by wetting agents or foaming agents, and crusting agents (binding agents used for long-term surface stabilization).

Dust suppressants including water and chemical surfactant (in both liquid and foam forms) are utilized to suppress the formation of airborne dust. The liquid spray dust suppression system is utilized to control PM_{10} emissions from material handling at conveyor transfer points and to stabilize open storage piles as well as unpaved roads. The wetting agent can be water or a combination of water and chemical surfactant. There are several types of chemical surfactants commercially available; however, magnesium chloride and calcium chloride are the most popular. According to the 1983 EPA's research, chemical surfactant reduces the surface tension of water; hence, reduces the quantity of water necessary to achieve a good control by a minimum ratio of 4:1. South Western Sealcoating, Inc., a vendor of a magnesium chloride product, indicated that magnesium chloride has been used for years by the mining industry on haul roads. The Arizona Department Of Environmental Quality, Office Of Water Quality has granted permission for the use of magnesium chloride dust suppressants.

Micron-sized foam application is an alternative to water spray system. The foam system can provide greater control at lower additional moisture rate than liquid spray system; however, the foam should be distributed throughout the materials rather than covering them. In addition, the

amount applied should allow foam to dissipate. The presence of foam in the materials indicates that either too much foam was used or foam was not adequately dispersed within the materials.

According to the Final Revised PM_{10} State Implementation Plan For The Salt River Area dated August 2004, the 1997 South Coast Air Quality Management District staff report for Rule 1186 (applicable to unpaved roads within the South Coast Air Basin) includes the following emission reduction percentages for various control options: 94% reduction for paving, 75% reduction for applying chemical stabilizers, and 50% reduction for a 15 mph speed limit. And based on the Texas Commission for Environmental Quality general permit application for concrete batch plants, the emissions reduction percentages can be achieved for the following controls: 80% reduction for oiling unpaved roads, 85% reduction for application of chemical foam, 90% reduction for paving and sweeping, 95% reduction for paving and watering, 98% reduction for paving and wet sweeping, and 99% reduction for paving and foam application.

Using dust suppressants instead of water to control fugitive dust from active operations, from stacking, loading, and unloading open storage piles, from disturbed surface areas, and from haul/access roads is an acceptable option in Rule 316. According to the South Coast Air Quality Management District final socioeconomic report for proposed Rule 1157 (PM_{10} Emission Reductions From Aggregate And Related Operations) dated December 3, 2004, it costs two cents per square foot to treat an area with a dust suppressant other than water. Open storage pile data reported by nonmetallic mineral processing facilities in the Maricopa County Air Quality Department's 2002 PM_{10} emissions inventory indicated that storage piles range from 0.1 acre to 80 acres and average four acres per facility. To estimate the cost to apply dust suppressants, Maricopa County assumed a facility (whether the facility be large-, medium-, or small-sized) has 130,680 square feet (three acres) of open storage piles. If a facility chose to apply a dust suppressant other than water to three acres of open storage piles and if such facility did so twelve times per year, then the total annual cost of stabilizing open storage piles with a dust suppressant other than water is estimated to be $31,363.

Installing And Maintaining Rumbles Grates, Wheel Washers/Vehicle Washes, Truck Washers

A rumble grate is a wheel shaker device consisting of raised dividers (rails, pipe, or grate) of minimum three inches tall and six inches apart and 20 feet long. As a vehicle passes over the rumble grate, vibration is produced to shake dust off the wheels.

A wheel washer is a washing pit or trough through which a vehicle passes in order to remove rocks and dirt from vehicle wheels and wheel wells. The purpose of a wheel washer is to reduce the amount of rock and rock carried by vehicles from work sites onto public roads, thus lessening the need for street sweeping and creating cleaner, less-dusty work sites.

According to Teichert Materials, there are two basic types of wheel washers: basin and pressurized. Basin-type wheel washers are flooded with water and rumble strips are often used to agitate tire treads. Pressurized-type wheel washers may use high or low pressure systems. Low

pressure systems employ horizontal spray bars to wash tires. High pressure systems employ horizontal or vertical spray bars to wash tires. The advantage of high pressure systems is less water consumption.

At quarries, stormwater permits regulate discharge. A wheel washer at a permitted quarry cannot use anything other than fresh water or "recycled" water. Typically, a quarry will drain dirty water back to large retention ponds, where fines settle. Recycled water is then pumped from the retention ponds back to the quarry for use. Recycled water is often used to wash stone products as well as to stabilize roads or to wash vehicle wheels via a wheel washer. If the retention ponds are large enough the recycled water will appear visibly clean.

However, if a quarry or work site is not large enough for a retention pond with ample space/volume for fines to settle, a quarry or work site can install a water treatment facility where chemical agents (i.e., flocculants) are used to accelerate the settling rate. For a large aggregate plant, for example, installing a water treatment facility could cost well over $100,000.

Alternatively, filters can be used to clean and recycle water. Filters can be as simple as a row of containers fitted with porous liners or as sophisticated as self-cleaning sand or bead filters. For facilities with less than 100 trucks exiting per day, a dewatering bin could be used to clean or recycle water. A dewatering bin consists of containers fitted with filter liners. A dewatering bin is capable of removing any particulate above 150 microns. The maintenance costs of a dewatering bin might be too onerous for large facilities.

For a wheel washer, “very” clean water to wash tires is not as important as getting the tires dry before a vehicle exits the site. Getting the tires dry requires 1,000-1,500 feet of paved road from the exit of the wheel washer to the exit of the site. This distance is often not feasible, because most facilities do not have the benefit of 1,500 feet of paved road to the exit. Consequently, when a vehicle exits the site when the vehicle tires are still wet, the water that the vehicle and its tires track onto a public road contains very fine sediments, even though such vehicle and its tires have been “washed” in a wheel washer. When the water that has been tracked onto a public road evaporates, the surface of the public road is left coated with the very fine sediments and the purpose of the wheel washer has been defeated. Although having very fine sediments on a public road is considered trackout, the amount or degree of trackout could appear/be skewed. Because very fine sediments scatter light easily, the fugitive dust emissions created from traffic traveling over such very fine sediments is sometimes disproportionate to the actual amount of sediment tracked out onto the public road, especially in the light of sunrise and sunset.

Makers of wheel washers include Frutiger and National Environmental Service Company (NESCO). There are approximately 16 Frutiger wheel washers in operation in the United States (e.g., landfill operation in Oklahoma, Hilltop Quarry in Kentucky, and Sierra Rock in Placerville; 1,000 worldwide (e.g., Duffiren Quarry in Toronto, Canada). Frutiger wheel washers are high volume/low pressure systems with approximately 190 nozzles per wheel washer unit. NESCO’s

wheel washers include a 20-horsepower high pressure pump that sends approximately 40 gallons of water per truck from a well, pond, or city water line to spray bars at a rate of 160 gallons per minute. Additional wheel washer statistics, based on information obtained from the National Environmental Service Company (NESCO), are summarized in the table on Page #32.

With the revisions to Rule 316, new permanent facilities and existing permanent facilities with a minimum of 60 aggregate trucks, mixer trucks, and/or batch trucks exiting a facility on any day will have to use at least one rumble grate and one wheel washer/vehicle wash and new permanent facilities and existing permanent facilities with less than 60 aggregate trucks, mixer trucks, and/or batch trucks exiting a facility on any day will have to use at least one rumble grate, one wheel washer/vehicle wash, or one truck washer.

According to the South Coast Air Quality Management District final socioeconomic report for proposed Rule 1157 (PM_{10} Emission Reductions From Aggregate And Related Operations) dated December 3, 2004, a wheel washer is estimated to cost $50,000. The installation cost, including soil preparation, is assumed to be an additional $10,000. Also, it is estimated that a wheel washer applies 40 gallons of water to each truck that passes-thru the wheel washer. Each rumble grate is estimated to cost $5,000 with an additional $500 for installation. Each facility would need at least one rumble grate consisting of two panels - 24-foot long tracks spaced parallel to form two continuous tracks - one for each set of tires on a vehicle. Wheel washers and rumble grates are expected to last 10 years.

To estimate costs associated with wheel washers and rumble grates, Maricopa County estimated a large-sized facility has 495 trucks exiting the facility in a day. (The number of trucks exiting the facility per year was estimated by dividing the "crushing" throughput for a large facility (1,699,579 tons) by 12 tons per truck. To determine the number of trucks exiting per day, the number of trucks exiting per year was divided by 286 operating days per year - 5.5 days per week, 52 weeks per year). If 40 gallons of water are applied to each truck that passes-thru the wheel washer, then the wheel washer will have applied 19,800.00 gallons of water in that day. Using a factor of $4.00 per 1,000 gallons of water (U.S. Department Of Energy-2004), the large-sized facility will have spent $79.20 for water used in the wheel washer in that day and will spend $22,661.05 for water used in the wheel washer per year. Also, if a large-sized facility paves approximately 1,200 square feet from the rumble grate and wheel washer to the facility exit, assuming 12 lbs of asphalt is required to pave one square foot and assuming the cost of asphalt is approximately $50 per ton, then a large-sized facility would pay approximately $360 to pave approximately 1,200 square feet from the rumble grate and wheel washer to the facility exit.

Chapter 4 of the Technical Support Document For The Final Revised PM_{10} State Implementation Plan For The Salt River Area dated August 2004 discusses contributions from trackout. Based on a survey of the extent and silt loading from trackout, the plan applies an emission factor of 12 g/vehicle miles traveled (VMT) for industrial trackout from these facilities

and assumes a distance of 200 meters. Using these factors, emissions from trackout are estimated to range from 1.9 tons per year, if the plant is located on a road with an average daily traffic (ADT) rate of 3,200, to 15.5 tons per year, if the plant is located on a road with an ADT rate of 26,100.

Wheel Washer Statistics
From The National Environmental Service Company (NESCO)

Wheel Washer Site	Water Requirements For Wheel Washer	Number Of Trucks Exiting Site Thru Wheel Washer	Approximate Cost Of Wheel Washer Construction	Approximate Cost To Maintain Wheel Washer
Cadman North Bend, Washington	250 gallons per minute at 45 seconds per truck. No dryer. 750 feet of asphaltic concrete prior to plant exit.	150-300 per day	$200,000	Tank clean-out estimated monthly
Cadman Aggregates North Bend, Washington	Closed loop system with 30,000 gallon storage tank/separator		$200,000	Wheel washer was part of permit condition for mining
Vernalis	3,000 gallons processed at approximate 30 psi per wash cycle at 40-50 seconds per truck passing-thru at 4-5 miles per hour	60-70 per hour	$52,500	2-year warranty for pumps (three to four 7.4 hp submersible slurry pumps included and modeled after Tsurumi style; each pump 430 gallons per minute at 30 psi)
Granite Rock, Sparks, Nevada	Drive-through trough applying recycled water and discharging water into settling pond system through spillway and cattle guard system with running water and shaking-off of additional debris at point of exit.		$40,000	
Granite Construction Sacramento, California	Fill up as needed. Water is constantly re-circulated with a concrete clean out pit for solids; pump horsepower is 25. 10 nozzles per lane (total of 3 lanes) discharge water onto the wash ramp. Grade of the entire wheel washer is approximately 6%-7%. No dryer. 150 feet of asphaltic concrete prior to plant exit.		$150,000	Clean out pit as needed
Hansen Aggregates Cupertino, California	Open loop system uses virgin well water. Discharge water is piped over to the plant to be used as process water. Water is gravity fed to a concrete weir settling system to remove solids prior to becoming plant process water.		$200,000	Plant is located in neighborhood, which was driving force for installation of wheel washer

Installing And Maintaining Gravel Pads From Rumble Grates, Wheel Washers/Vehicle Washes, Truck Washers To Facility Exits

The revisions to Rule 316 require facilities that must use a rumble grate, a wheel washer/vehicle wash, or a truck washer (new permanent facilities and existing permanent facilities with less than 60 aggregate trucks, mixer trucks, and/or batch trucks exiting a facility on any day) to either pave or install a gravel pad from the rumble grates, wheel washers/vehicle washes, or truck washers to the exits (leading to paved public roads). If a gravel pad is used, then the gravel pad must be designed with a layer of washed gravel, rock, or crushed rock that is at least one inch or larger in diameter and 6 inches deep, 30 feet wide, and 50 feet long and must have curbs or structural devices along the perimeter of the gravel pad.

According to the Final BACM Technological And Economic Feasibility Analysis prepared by Sierra Research, Inc. for San Joaquin Valley Unified Air Pollution Control District dated March 21, 2003, the cost of a gravel pad is $500 to construct and $860 per year to maintain. Maintenance includes the periodic removal, screening, and replacement of the gravel to remove accumulated soil. The cleaning frequency depends on the ability of the facility to keep disturbed soils moist enough to prevent visible dust and dry enough to prevent mud from adhering to the wheels of vehicles exiting the facility. The cost effectiveness (dollars per ton of PM_{10} reduced) for requiring gravel pads to be 3 inches deep, 50 feet long, and full road width will range from $13.74 per pound to $161 per pound or $27,500 - $322,000 per ton of PM_{10} reduced, according to the Final BACM Technological And Economic Feasibility Analysis prepared by Sierra Research, Inc. for San Joaquin Valley Unified Air Pollution Control District dated March 21, 2003.

Paving From Rumble Grates To Wheel Washers/Vehicle Washes

The revisions to Rule 316 require facilities that must use a rumble grate and a wheel washer/vehicle wash (new permanent facilities and existing permanent facilities with a minimum of 60 aggregate trucks, mixer trucks, and/or batch trucks exiting a facility on any day) to pave the roads from the rumble grates and the wheel washers/vehicle washes to the exits (leading to paved public roads). According to the South Coast Air Quality Management District final socioeconomic report for proposed Rule 1157 (PM_{10} Emission Reductions From Aggregate And Related Operations) dated December 3, 2004, a paved area necessary for the installation of a rumble grate and a wheel washer would need to be 1,200 ft^2 (60 feet long x 20 feet wide). The distance of 60 feet long consists of 10 feet between the rumble grate and the wheel washer, 20 feet for the wheel washer, and 30 feet from the wheel washer to the exit.

According to All American Asphalt, approximately 12 lbs of asphalt would be used for each square foot of low quality paved road and approximately $50 would be charged for each ton of asphalt used (including labor, with the assumption that the ground is firm and does not need much preparation). The cost to pave the roads from the rumble grates and the wheel washer to the exit is estimated to cost $360.

Stabilizing Unpaved Haul/Access Roads And Facility Entries And Exits

With the revisions to Rule 316, haul/access roads and facility entries and exits are required to be stabilized with pavement, a cohesive hard surface, gravel or other suitable material, or a dust suppressant other than water.

To estimate costs associated with paving internal haul/access roads, Maricopa County assumed a facility (whether the facility be large-, medium-, or small-sized) would be required to pave ¼ mile of unpaved internal haul/access roads. Assuming the paved haul/access roads are 24 feet wide, approximately 12 lbs of asphalt are required to pave one square foot, and the cost of asphalt is approximately $50 per ton, then the facility would pay $9,504 to pave ¼ mile of unpaved internal haul/access roads.

Also, the cost associated with applying a cohesive hard surface (e.g., recycled asphalt) to ¼ mile of unpaved internal haul/access roads was estimated assuming the unpaved internal haul/access roads are 24 feet wide, approximately 12 lbs of recycled asphalt are required to pave one square foot, and the cost of asphalt is approximately $49 per ton (according to the Spokane Regional Solid Waste System, recycled asphalt costs $1 less per ton than virgin asphalt). The facility would pay $9,314 to stabilize ¼ mile of unpaved internal haul/access roads with recycled asphalt.

Stabilizing Open Storage Piles And Material Handling

Operations that use minerals in aggregate form typically have open storage piles and material handling activities/areas. Material handling activities/areas and open storage piles are often left uncovered, partially because of the need for frequent material transfer into or out of storage. As a result, material handling activities/areas and open storage piles are significant sources of particulate matter emissions. As front loaders and trucks add and remove materials from these points, a significant amount of particulate matter emissions are generated.

Currently, Rule 310 (Fugitive Dust) includes fugitive dust control measures for open storage piles at industrial sources and construction sources. The revisions in Rule 316 include fugitive dust control measures specific to open storage piles and material handling activities/areas at nonmetallic mineral processing plants, asphaltic concrete plants, and concrete plants and/or bagging operations. With the revisions to Rule 316, a source subject to Rule 316 would be subject to the fugitive dust control measures in Rule 316 and not in Rule 310. In addition, with the revisions to Rule 316, if a source is subject to Rule 316 but a particular activity is not subject to the specific fugitive dust control measures in Rule 316, such activity would be subject to the fugitive dust control measures in Rule 310.

With the revisions to Rule 316, one of the fugitive dust control options for open storage piles is to apply water. To estimate the cost of applying water to active storage piles, Maricopa County assumed that, on average, a facility (whether the facility be large-, medium-, or small-sized) has 130,680 square feet (three acres) of open storage piles and, on average, when open storage piles

are considered active, a facility is moving materials to and/or from approximately 3,630 square yards (¾ acre) of such open storage piles. If a facility chooses to apply water to active storage piles and assuming one gallon of water per square yard per day is required, then the facility will apply approximately 3,630 gallons of water per day to such active storage piles. Also, using a factor of $4.00 per 1,000 gallons of water (U.S. Department Of Energy-2004), facility will spend approximately $14.52 per day for water applied to such open storage piles. Assuming the open storage piles are active for 286 days per year, the facility will spend $4,152.72 annually for water applied to such open storage piles.

Ceasing Active Operations During A Wind Event

With the revisions to Rule 316, ceasing active operations that may exceed the 20% opacity limitation during a wind event (when the 60-minute average wind speed is greater than 25 miles per hour) is an acceptable option for fugitive dust control. The cost effectiveness of requiring a facility to cease active operations that may exceed the 20% opacity limitation during a wind event (when the 60-minute average wind speed is greater than 25 miles per hour) was estimated in the Final BACM Technological And Economic Feasibility Analysis prepared by Sierra Research, Inc. for San Joaquin Valley Unified Air Pollution Control District dated March 21, 2003. In making such estimation, implementation costs included the cost of idle laborers and equipment for a day. The cost of idle labor and equipment was computed on the basis of charge rate information received from construction managers. These costs were estimated to total $388 per hour for four operators, one scraper, one bulldozer, one front-end loader, and one grader or $3,100 per eight-hour day idled. The total cost of requiring active operations to cease during a wind event was calculated to be $5,070 per wind event day.

Cleaning Paved Internal Roads

The revisions to Rule 316 require that a facility that is already existing/operating at the time Rule 316 is adopted and has a minimum of 60 trucks exiting a facility per day to sweep paved internal roads with a street sweeper by the end of an 8-hour operating period based on the 24-hour operating schedule, if there is evidence of dirt and/or other bulk material extending a cumulative distance of 12 linear feet or more on any paved internal road. Such facility would not be required to purchase new street sweepers. However, if such facility chooses to purchase new street sweepers, such street sweepers would have to meet the criteria of PM_{10} efficient South Coast Rule 1186 certified sweepers. The revisions to Rule 316 also require that a facility that is already existing/operating at the time Rule 316 is adopted and has less than 60 trucks exiting a facility per day to sweep paved internal roads with a street sweeper by the end of every other working period that may include one or more work shift but not later than 8 pm. Such facility would not be required to purchase new street sweepers. However, if such facility chooses to purchase new street sweepers, such street sweepers would have to meet the criteria of PM_{10} efficient South Coast Rule 1186 certified sweepers.

To estimate costs associated with sweeping paved internal roads, Maricopa County assumed that, on average, a facility (whether the facility be large-, medium-, or small-sized) will sweep paved internal roads for approximately two hours per day - 5½ days per week for 52 weeks per year. If a facility hires a sweeping company to sweep paved internal roads, Maricopa County estimates that the facility will pay $85 per hour for such sweeping. In one year, then, a facility could pay approximately $48,620 to sweep paved internal roads.

Examples Of Large-Sized, Medium-Sized, And Small-Sized Facilities And Costs Of Implementing And/Or Operating Fugitive Dust Control Measures

On the following pages are four tables that summarize estimated annual costs, capital costs, and emissions reduced for a large-sized facility, two medium-sized facilities, and a small-sized facility, after such facilities implement and/or operate the fugitive dust control measures required by Rule 316. Maricopa County estimates that total annualized cost and cost effectiveness to implement Rule 316 controls as follows:

Facility	**Emissions Reduced** (Tons Per Year - TPY)	**Total Annualized To Implement Rule 316**	**Cost Effectiveness**
Large-Sized Facility	17.11	$101,314 - $116,067	$4,802 - $5,501
Medium-Sized Facility #1	11.7	$92,755 - $107,508	$6,417 - $7,437
Medium-Sized Facility #2	7.71	$86,717 - $101,469	$9,126 - $10,678
Small-Sized Facility	0.61	$22,653 - $44,976	$30,087 - $59,750

Maricopa County expects additional emission reductions from Rule 316 trackout controls; however, these reductions have not been quantified and are not included in the 176.3 tons per year.

Estimated Annual Costs, Capital Costs, And Emissions Reduced For A Large-Sized Facility That Implements And/Or Operates The Fugitive Dust Control Measures Required By Rule 316

Annual Costs	**Assumptions**	**Notes**	**Operation And Maintenance Costs Per Year** (Applying Water On Open Storage Piles)	**Operation And Maintenance Costs Per Year** (Applying Dust Suppressant Other Than Water On Open Storage Piles)
Water Consumption - Wheel Washer	495 trucks exiting facility per day	(6)	$22,661	$22,661
Dust Suppressant - Open Storage Piles	3 acres of open storage piles	(3)		$31,363
Water Consumption - Open Storage Piles	3 acres of open storage piles	(4)	$16,611	
Water Consumption - Active Storage Piles	0.75 acres of open storage piles	(5)	$4,153	$4,153
Street Sweeper - Internal Roads	$85 per hour for street sweeper rental/service for 2 hours per day, 5½ days per week, 52 weeks per year (286 days per year)	(7)	$48,620	$48,620
Total Annual Cost			$92,045	$106,797
Rule 316 Controls	**Assumptions**	**Notes**	**Capital Costs**	**Capital Costs**
Wheel Washer	1 wheel washer installed		$60,000	$60,000
Rumble Grate	1 rumble grate installed		$5,500	$5,500
Paving Exit	1,200 square feet of exit paving, 12 lbs asphalt per square foot, $50 per ton of asphalt	(2)	$360	$360
Paving Internal Roads	¼ mile of internal roads paved	(1)	$9,504	$9,504
Total Capital Cost			$75,364	$75,364
Capital Cost (Annualized Total Costx0.123 Capital Recovery Factor)			$9,270	$9,270
Annual Operation And Maintenance (O&M) Cost			$92,045	$106,797
Total Annualized Cost			$101,314	$116,067
Cost Effectiveness [(Capital costs+(Annual O&M costsx8.11))/(Emission reductions (tons per year)x10 years)]			$4,802	$5,501
Emissions Reduced			**Lbs Per Year**	**Tons Per Year**
2002 Baseline Emissions			119,687	59.84
2002 Emissions After Controls			85,458	42.73
Emissions Reduced			34,229	17.11

Notes For Large-Sized Facility

(1) Cost of paving ¼ mile of internal roads assuming 24 feet width
126,720 = square feet per square mile assuming 5,280 feet per mile and 24 feet road width
31,680 = 0.25 square feet per square mile
12 = lbs of asphalt per square foot
380,160 = lbs of asphalt
2,000 = lbs per ton
190 = tons of asphalt
$50 = per ton of asphalt
$9,504 = paving ¼ mile of internal roads

(2) Cost of paving 1,200 feet of exit
1,200 = square feet of exit
12 = lbs of asphalt per square foot
14,400 = lbs of asphalt
2,000 = lbs per ton
7 = tons of asphalt
$50 = per ton of asphalt
$360 = paving 1,200 feet of exit

(3) Cost of stabilizing open storage piles with dust suppressants
3 = acres of open storage piles
43,560 = feet per acre
130,680 = square feet per 3 acres
$0.02 = per square foot of dust suppressant
$2,613 = per one application of dust suppressant
12 = applications of dust suppressants per year
$31,363 = per year stabilizing open storage piles with dust suppressants

(4) Cost of watering open storage piles
3 = acres of open storage piles
4,840 = square yards per acre
14,520 = gallons of water per square yard
$4 = per 1,000 gallons of water
$58.08 = water per day
286 = per year assuming facility operates 5½ days per week for 52 weeks per year
$16,610.88 =per year watering open storage piles

(5) Cost of watering open storage piles during loading and/or unloading
3 = acres of open storage piles
0.25 = acres of active open storage piles
0.75 = acres of open storage piles
4,840 = square yards per acre
3,630 = square yards per 0.75 acre
1 = gallon of water per square yard per day
3,630 = gallons of water per day
$4 = per 1,000 gallons of water
$14.52 = water per day
286 = days per year assuming facility operates 5½ days per week for 52 weeks per year
$4,152.72 = per year watering open storage piles during loading and/or unloading

(6) Cost of water consumption - wheel washer
1,699,579 = tons rock (throughput) from crushing
12 = tons per truck
286 = days per year assuming facility operates 5½ days per week for 52 weeks per year
495 = trucks exiting per day
40 = gallons of water per truck
19,808.61 = gallons of water per day
$4 = per 1,000 gallons of water
$79.23 = water per day
286 = days per year assuming facility operates 5½ days per week for 52 weeks per year
$22,661.05 = per year cost of water consumption - wheel washer

(7) Cost of street sweeping
$85 = per hour street sweeper rental/street sweeping service
2 = hours per day
5½= days per week
52 = weeks per year
$48,620 = per year cost of street sweeping

Estimated Annual Costs, Capital Costs, And Emissions Reduced For A Medium-Sized Facility That Implements And/Or Operates The Fugitive Dust Control Measures Required By Rule 316

Rule 316 Controls	**Assumptions**	**Notes**	**Operation And Maintenance Costs Per Year** (Applying Water On Open Storage Piles)	**Operation And Maintenance Costs Per Year** (Applying Dust Suppressant Other Than Water On Open Storage Piles)
Water Consumption - Wheel Washer	308 trucks exiting facility per day	(6)	$14,102	$14,102
Dust Suppressant - Open Storage Piles	3 acres of open storage piles	(3)		$31,363
Water Consumption - Open Storage Piles	3 acres of open storage piles	(4)	$16,611	
Water Consumption - Active Storage Piles	0.75 acres of open storage piles	(5)	$4,153	$4,153
Street Sweeper - Internal Roads	$85 per hour for street sweeper rental/service for 2 hours per day, 5½ days per week, 52 weeks per year (286 days per year)	(7)	$48,620	$48,620
Total Annual Cost			$83,486	$98,238
Rule 316 Controls	**Assumptions**	**Notes**	**Capital Costs**	**Capital Costs**
Wheel Washer	1 wheel washer installed		$60,000	$60,000
Rumble Grate	1 rumble grate installed		$5,500	$5,500
Paving Exit	1,200 square feet of exit paving, 12 lbs asphalt per square foot, $50 per ton of asphalt	(2)	$360	$360
Paving Internal Roads	¼ mile of internal roads paved	(1)	$9,504	$9,504
Total Capital Cost			$75,364	$75,364
Capital Cost (Annualized Total Costx0.123 Capital Recovery Factor)			$9,270	$9,270
Annual Operation And Maintenance (O&M) Cost			$83,486	$98,238
Total Annualized Cost			$92,755	$107,508
Cost Effectiveness [(Capital costs+(Annual O&M costsx8.11))/(Emission reductions (tons per year)x10 years)]			$6,417	$7,437
Emissions Reduced			**Lbs Per Year**	**Tons Per Year**
2002 Baseline Emissions			63,138	31.57
2002 Emissions After Controls			39,687	19.84
Emissions Reduced			23,451	11.7

Notes For Medium-Sized Facility

(1) Cost of paving ¼ mile of internal roads assuming 24 feet width

126,720 =	square feet per square mile assuming 5,280 feet per mile and 24 feet road width
31,680 =	0.25 square feet per square mile
12 =	lbs of asphalt per square foot
380,160 =	lbs of asphalt
2,000 =	lbs per ton
190 =	tons of asphalt
$50 =	per ton of asphalt
$9,504 =	paving ¼ mile of internal roads

(2) Cost of paving 1,200 feet of exit

1,200 =	square feet of exit
12 =	lbs of asphalt per square foot
14,400 =	lbs of asphalt
2,000 =	lbs per ton
7 =	tons of asphalt
$50 =	per ton of asphalt
$360 =	paving 1,200 feet of exit

(3) Cost of stabilizing open storage piles with dust suppressants

3 =	acres of open storage piles
43,560 =	feet per acre
130,680 =	square feet per 3 acres
$0.02 =	per square foot of dust suppressant
$2,613 =	per one application of dust suppressant
12 =	applications of dust suppressants per year
$31,363 =	per year stabilizing open storage piles with dust suppressants

(4) Cost of watering open storage piles

3 =	acres of open storage piles
4,840 =	square yards per acre
14,520 =	gallons of water per square yard
$4 =	per 1,000 gallons of water
$58.08 =	water per day
286 =	per year assuming facility operates 5½ days per week for 52 weeks per year
$16,610.88 =	per year watering open storage piles

(5) Cost of watering open storage piles during loading and/or unloading

3 =	acres of open storage piles
0.25 =	acres of active open storage piles
0.75 =	acres of open storage piles
4,840 =	square yards per acre
3,630 =	square yards per 0.75 acre
1 =	gallon of water per square yard per day
3,630 =	gallons of water per day
$4 =	per 1,000 gallons of water
$14.52 =	water per day
286 =	days per year assuming facility operates 5½ days per week for 52 weeks per year
$4,152.72 =	per year watering open storage piles during loading and/or unloading

(6) Cost of water consumption - wheel washer

1,057,655 =	tons rock (throughput) from crushing
12 =	tons per truck
286 =	days per year assuming facility operates 5½ days per week for 52 weeks per year
308 =	trucks exiting per day
40 =	gallons of water per truck
12,326.98 =	gallons of water per day
$4 =	per 1,000 gallons of water
$49.31 =	water per day
286 =	days per year assuming facility operates 5½ days per week for 52 weeks per year
$14,102.07 =	per year cost of water consumption - wheel washer

(7) Cost of street sweeping

$85 =	per hour street sweeper rental/street sweeping service
2 =	hours per day
5½=	days per week
52 =	weeks per year
$48,620 =	per year cost of street sweeping

Estimated Annual Costs, Capital Costs, And Emissions Reduced For A Medium-Sized Facility That Implements And/Or Operates The Fugitive Dust Control Measures Required By Rule 316

Annual Costs	**Assumptions**	**Notes**	**Operation And Maintenance Costs Per Year** (Applying Water On Open Storage Piles)	**Operation And Maintenance Costs Per Year** (Applying Dust Suppressant Other Than Water On Open Storage Piles)
Water Consumption - Wheel Washer	176 trucks exiting facility per day	(6)	$8,064	$8,064
Dust Suppressant - Open Storage Piles	3 acres of open storage piles	(3)		$31,363
Water Consumption - Open Storage Piles	3 acres of open storage piles	(4)	$16,611	
Water Consumption - Active Storage Piles	0.75 acres of open storage piles	(5)	$4,153	$4,153
Street Sweeper - Internal Roads	$85 per hour for street sweeper rental/service for 2 hours per day, 5½ days per week, 52 weeks per year (286 days per year)	(7)	$48,620	$48,620
Total Annual Cost			$77,447	$92,199
Rule 316 Controls	**Assumptions**	**Notes**	**Capital Costs**	**Capital Costs**
Wheel Washer	1 wheel washer installed		$60,000	$60,000
Rumble Grate	1 rumble grate installed		$5,500	$5,500
Paving Exit	1,200 square feet of exit paving, 12 lbs asphalt per square foot, $50 per ton of asphalt	(2)	$360	$360
Paving Internal Roads	¼ mile of internal roads paved	(1)	$9,504	$9,504
Total Capital Cost			$75,364	$75,364
Capital Cost (Annualized Total Costx0.123 Capital Recovery Factor)			$9,270	$9,270
Operation And Maintenance Cost			$77,447	$92,199
Total Annualized Cost			$86,717	$101,469
Cost Effectiveness [(Capital costs+(Annual O&M costsx8.11))/(Emission reductions (tons per year)x10 years)]			$9,126	$10,678
Emissions Reduced			**Lbs Per Year**	**Tons Per Year**
2002 Baseline Emissions			73,432	36.72
2002 Emissions After Controls			58,016	29.01
Emissions Reduced			15,417	7.71

Notes For Medium-Sized Facility

(1) Cost of paving ¼ mile of internal roads assuming 24 feet width

126,720 =	square feet per square mile assuming 5,280 feet per mile and 24 feet road width
31,680 =	0.25 square feet per square mile
12 =	lbs of asphalt per square foot
380,160 =	lbs of asphalt
2,000 =	lbs per ton
190 =	tons of asphalt
$50 =	per ton of asphalt
$9,504 =	paving ¼ mile of internal roads

(2) Cost of paving 1,200 feet of exit

1,200 =	square feet of exit
12 =	lbs of asphalt per square foot
14,400 =	lbs of asphalt
2,000 =	lbs per ton
7 =	tons of asphalt
$50 =	per ton of asphalt
$360 =	paving 1,200 feet of exit

(3) Cost of stabilizing open storage piles with dust suppressants

3 =	acres of open storage piles
43,560 =	feet per acre
130,680 =	square feet per 3 acres
$0.02 =	per square foot of dust suppressant
$2,613 =	per one application of dust suppressant
12 =	applications of dust suppressants per year
$31,363 =	per year stabilizing open storage piles with dust suppressants

(4) Cost of watering open storage piles

3 =	acres of open storage piles
4,840 =	square yards per acre
14,520 =	gallons of water per square yard
$4 =	per 1,000 gallons of water
$58.08 =	water per day
286 =	per year assuming facility operates 5½ days per week for 52 weeks per year
$16,610.88 =	per year watering open storage piles

(5) Cost of watering open storage piles during loading and/or unloading

3 =	acres of open storage piles
0.25 =	acres of active open storage piles
0.75 =	acres of open storage piles
4,840 =	square yards per acre
3,630 =	square yards per 0.75 acre
1 =	gallon of water per square yard per day
3,630 =	gallons of water per day
$4 =	per 1,000 gallons of water
$14.52 =	water per day
286 =	days per year assuming facility operates 5½ days per week for 52 weeks per year
$4,152.72 =	per year watering open storage piles during loading and/or unloading

(6) Cost of water consumption - wheel washer

604,767 =	tons rock (throughput) from crushing
12 =	tons per truck
286 =	days per year assuming facility operates 5½ days per week for 52 weeks per year
176 =	trucks exiting per day
40 =	gallons of water per truck
7,048.57 =	gallons of water per day
$4 =	per 1,000 gallons of water
$28.19 =	water per day
286 =	days per year assuming facility operates 5½ days per week for 52 weeks per year
$8,063.56 =	per year cost of water consumption - wheel washer

(7) Cost of street sweeping

$85 =	per hour street sweeper rental/street sweeping service
2 =	hours per day
5½=	days per week
52 =	weeks per year
$48,620 =	per year cost of street sweeping

Estimated Annual Costs, Capital Costs, And Emissions Reduced For A Small-Sized Facility That Implements And/Or Operates The Fugitive Dust Control Measures Required By Rule 316

			Annual Operation And Maintenance Costs							
Rule 316 Controls	**Assumptions**	**Notes**	**Scenario A***	**Scenario B***	**Scenario C***	**Scenario D***	**Scenario E***	**Scenario F***	**Scenario G***	**Scenario H***
Water Consumption Wheel Washer	19 trucks exiting facility per day	(6)	$867	$867	$867	$867				
Dust Suppressant Open Storage Piles	3 acres of open storage piles	(3)		$31,363		$31,363		$31,363		$31,363
Water Consumption Open Storage Piles	3 acres of open storage piles	(4)	$16,611		$16,611		$16,611		$16,611	
Water Consumption Active Storage Piles	0.75 acres of open storage piles	(5)	$4,153	$4,153	$4,153	$4,153	$4,153	$4,153	$4,153	44,153
Maintain Gravel Pad	6 inches deep, 50 feet long, 30 feet wide, 1 inch or larger in diameter gravel, rock, or crushed rock				$860	$860			$860	$860
Street Sweeper Internal Roads	$85 per hour for street sweeper rental/service for 2 hours per day, 5½ days per week, 52 weeks per year (286 days per year)	(7)	$48,620	$48,620	$48,620	$48,620	$48,620	$48,620	$48,620	$48,620
Total Annual Cost			$21,630	$36,383	$22,490	$37,243	$20,764	$35,516	$21,624	$36,376
			Capital Costs							
Rule 316 Controls	**Assumptions**	**Notes**	**Scenario A***	**Scenario B***	**Scenario C***	**Scenario D***	**Scenario E***	**Scenario F***	**Scenario G***	**Scenario H***
Wheel Washer	1 wheel washer installed		$60,000	$60,000	$60,000	$60,000				
Rumble Grate	1 rumble grate installed						$5,500	$5,500	$5,500	$5,500
Gravel Pad To Exit	Same as "Maintain Gravel Pad"	(9)			$500	$500			$500	$500
Paving Exit	1,200 square feet of exit to pave, 12 lbs asphalt per square foot, $50 per ton of asphalt	(2)	$360	$360			$360	$360		
Cohesive Hard Surface On Internal Roads	¼ mile of internal roads covered with cohesive hard surface	(8)			$9,314	$9,314			$9,314	$9,314
Paving Internal Roads	¼ mile of internal roads paved	(1)	$9,504	$9,504			$9,504	$9,504		

Continued
Estimated Annual Costs, Capital Costs, And Emissions Reduced For A Small-Sized Facility That Implements And/Or Operates The Fugitive Dust Control Measures Required By Rule 316

			Operation And Maintenance Costs							
Annual Costs	**Assumptions**	**Notes**	**Scenario A***	**Scenario B***	**Scenario C***	**Scenario D***	**Scenario E***	**Scenario F***	**Scenario G***	**Scenario H***
Total Capital Cost			$69,864	$69,864	$69,814	$69,814	$15,364	$15,364	$15,314	$15,314
Annualized Capital Cost (Total Capital Costx0.123 Capital Recovery Factor)			$8,593	$8,593	$8,587	$8,587	$1,890	$1,890	$1,884	$1,884
Operation And Maintenance Cost			$21,630	$36,383	$22,490	$37,243	$20,764	$35,516	$21,624	$36,376
Total Annualized Cost			$30,224	$44,976	$31,077	$45,830	$22,653	$37,406	$23,507	$38,260
Cost Effectiveness [(Capital costs+(Annual O&M costsx8.11))/(Emission reductions (tons per year)x10 years)]			$40,161	$59,750	$41,295	$60,884	$30,087	$49,676	$31,221	$50,810

Emissions Reduced	**Lbs Per Year**	**Tons Per Year**
2002 Baseline Emissions	8,449	4.22
2002 Emissions After Controls	7,227	3.61
Emissions Reduced	1,222	0.61

Scenario A: Watering open storage piles; wheel washer; pave to exit; pave internal roads
Scenario B: Dust suppressant on open storage piles; wheel washer; pave to exit, pave internal roads
Scenario C: Watering open storage piles; wheel washer; gravel pad to exit; cohesive hard surface on internal roads
Scenario D: Dust suppressant on open storage piles; wheel washer; gravel pad to exit; cohesive hard surface on internal roads
Scenario E: Watering open storage piles; rumble grate; pave to exit; pave internal roads
Scenario F: Dust suppressant on open storage piles; rumble grate; pave to exit; pave internal roads
Scenario G: Watering open storage piles; rumble grate; gravel pad to exit; cohesive hard surface on internal roads
Scenario H: Dust suppressant on open storage piles; rumble grate; gravel pad to exit; cohesive hard surface on internal roads

Notes For Small-Sized Facility

(1) Cost of paving ¼ mile of internal roads assuming 24 feet width
126,720 = square feet per square mile assuming 5,280 feet per mile and 24 feet road width
31,680 = 0.25 square feet per square mile
12 = lbs of asphalt per square foot
380,160 = lbs of asphalt
2,000 = lbs per ton
190 = tons of asphalt
$50 = per ton of asphalt
$9,504 = paving ¼ mile of internal roads

(2) Cost of paving 1,200 feet of exit
1,200 = square feet of exit
12 = lbs of asphalt per square foot
14,400 = lbs of asphalt
2,000 = lbs per ton
7 = tons of asphalt
$50 = per ton of asphalt
$360 = paving 1,200 feet of exit

(3) Cost of stabilizing open storage piles with dust suppressants
3 = acres of open storage piles
43,560 = feet per acre
130,680 = square feet per 3 acres
$0.02 = per square foot of dust suppressant
$2,613 = per one application of dust suppressant
12 = applications of dust suppressants per year
$31,363 = per year stabilizing open storage piles with dust suppressants

(4) Cost of watering open storage piles
3 = acres of open storage piles
4,840 = square yards per acre
14,520 = gallons of water per square yard
$4 = per 1,000 gallons of water
$58.08 = water per day

286 = per year assuming facility operates 5½ days per week for 52 weeks per year
$16,610.88 = per year watering open storage piles

(5) Cost of watering open storage piles during loading and/or unloading
3 = acres of open storage piles
0.25 = acres of active open storage piles
0.75 = acres of open storage piles
4,840 = square yards per acre
3,630 = square yards per 0.75 acre
1 = gallon of water per square yard per day
3,630 = gallons of water per day
$4 = per 1,000 gallons of water
$14.52 = water per day
286 = days per year assuming facility operates 5½ days per week for 52 weeks per year
$4,152.72 = per year watering open storage piles during loading and/or unloading

(6) Cost of water consumption - wheel washer
65,000 = tons rock (throughput) from crushing
12 = tons per truck
286 = days per year assuming facility operates 5½ days per week for 52 weeks per year
19 = trucks exiting per day
40 = gallons of water per truck
757.58 = gallons of water per day
$4 = per 1,000 gallons of water
$3.03 = water per day
286 = days per year assuming facility operates 5½ days per week for 52 weeks per year
$866.67 = per year cost of water consumption - wheel washer

(7) Cost of street sweeping
$85 = per hour street sweeper rental/street sweeping service
2 = hours per day
5½= days per week
52 = weeks per year
$48,620 = per year cost of street sweeping

(8) Cost of cohesive hard surface on ¼ mile of internal roads
126,720 = square feet per square mile assuming 5,280 feet per mile and 24 feet road width
31,680 = 0.25 square feet per square mile
12 = lbs of asphalt per square foot
380,160 = lbs of asphalt
2,000 = lbs per ton
190 = tons of asphalt
$49 = per ton of recycled asphalt
$9,314 = cohesive hard surface on ¼ mile of internal roads

(9) Cost to install and maintain a gravel pad
$500 = construction of gravel pad
$860 = per year to maintain gravel pad
$1,360 = installation and maintenance of a gravel pad

Impact Of Rule 316 Revisions On Maricopa County Air Quality Department Resources

Historically, Rule 316 has contained only emission limitations and not fugitive dust control measures specific to nonmetallic mineral processing plants, asphaltic concrete plants, and concrete plants and/or bagging operations. Sources subject to Rule 316 have been required to implement and/or comply with fugitive dust control measures described in Rule 310 (Fugitive Dust).

The revisions to Rule 316 include fugitive dust control measures specific to nonmetallic mineral processing plants, asphaltic concrete plants, and concrete plants and/or bagging operations. With the revisions to Rule 316, a source subject to Rule 316 would be subject to the fugitive dust control measures in Rule 316 and not in Rule 310. In addition, with the revisions to Rule 316, if a source is subject to Rule 316 but not to the specific fugitive dust control measures in Rule 316, such source would be subject to the fugitive dust control measures in Rule 310.

Maricopa County currently has nine inspectors, two supervisors, and four technical staff to inspect and determine compliance at stationary sources. Maricopa County will increase inspection

frequency for sources subject to Rule 316, beginning July 1, 2005, from one every two years to four times per year. Also, Maricopa County re-evaluated the workload for the increase inspection frequency and developed fees based on the new workload. The new fees will take effect on July 1, 2005.

Impact Of Rule 316 Revisions On Health And Health Costs

PM_{10} is a public health concern since particles of less than 10 microns in size can be deposited in, and can damage the airways of the lower respiratory tract and the gas-exchange portions of the lung. The adverse health effects of particulates, especially PM_{10}, are well documented. Various health studies have linked PM_{10} emissions to increased respiratory infections, more severe asthma, declines in pulmonary function, and shortened life spans. Current ambient levels of PM_{10} (30 to 150 micrograms per cubic meter) are associated with increases in the number of people that die daily from heart or lung failure. Most of these deaths are common among the elderly. However, there is strong evidence that some children are also adversely affected by PM_{10} emissions. The Children's Health Study conducted by USC Keck School of Medicine reveals that significant lung function deficits are closely associated with exposures to particulates, nitrogen dioxide, and atmospheric acidity, and that decreased lung development may have permanent adverse effects in adulthood. The study also concludes that children who move into cleaner communities with lower levels of PM_{10} have improvement in lung function growth rates. This conclusion means that even small emission reductions can have immediate benefits to the long-term respiratory health of children living in polluted communities.

Increases in ambient PM_{10} levels have also been shown to result in increases in acute respiratory hospital admissions, school absences in children, and increases in the use of medications in children and adults with asthma. The American Thoracic Society's Environmental And Occupational Health Assembly reviewed current health effects literature. They report that daily fluctuations in PM_{10} levels have been related to: acute respiratory hospital admissions in children; school and kindergarten absences; decreases in peak lung air flow rates in normal children; and, increased medication use in children and adults with asthma.

Because Maricopa County is a serious nonattainment area for PM_{10}, it is imperative to consider the medical and social costs of failing to take steps toward the improvement of the air quality. Adverse health effects from air pollution result in a number of economic and social consequences, including:

- Medical Costs: Personal out-of-pocket expenses of the affected individual (or family), plus costs paid by insurance or Medicare, for example.

- Work Loss: Lost personal income, plus lost productivity whether the individual is compensated for the time or not. For example, some individuals may perceive no income loss because they receive sick pay, but sick pay is a cost of business and reflects lost productivity.

- Increased Costs For Chores And Caregiving: Special caregiving and services that are not reflected in medical costs. These costs may occur, because some health effects reduce the affected individual's ability to undertake some or all normal chores. The affected individual may require extra care.

- Other Social And Economic Costs: Restrictions on or reduced enjoyment of leisure activities, increased discomfort or inconvenience, increased pain and suffering, anxiety about the future, and concern and inconvenience to family members.

Improvements in air quality will generate cost-saving benefits by avoiding adverse health effects, such as emergency room visits, hospital admissions, acute pediatric bronchitis, chronic adult bronchitis, acute respiratory symptom days, and even premature death. Potential benefits arising from a reduction of particulate matter and other pollutants emitted into the atmosphere can be inferred from data associated with the reduction of any airborne particulate matter.

According to The Benefits And Costs Of The Clean Air Act 1990 To 2010, Chapter 5-Human Health Effects of Criteria Pollutants prepared by the Environmental Protection Agency (EPA) dated November 1999, some of the health effects of human exposure to particulate matter can be quantified while others cannot. Quantified adverse health effects include: mortality, bronchitis (chronic and acute), new asthma cases, hospital admissions (respiratory and cardiovascular), emergency room visits for asthma, lower and upper respiratory illness, shortness of breath, respiratory symptoms, minor restricted activity days, days of work loss, moderate or worse asthma status of asthmatics. Un-quantifiable adverse health effects include: neonatal mortality, changes in pulmonary function, chronic respiratory diseases (other than chronic bronchitis), morphological changes, altered host defense mechanisms, cancer, and non-asthma respiratory emergency room visits.

Epidemiological evidence, according to the EPA's Particulate Matter (PM) Health Effects Research Center Program prepared by PM Centers Program staff dated January 2002, shows that particulate matter has negative health impacts in a variety of ways, including increased mortality and morbidity; more frequent hospital admissions, emergency room and clinician visits, increased need and demand for medication, and lost time from work and school. There is also increasing evidence that ambient air pollution can precipitate acute cardiac episodes, such as angina pectoris, cardiac arrhythmia, and myocardial infraction, although the majority of PM-related deaths are attributed to cardiovascular disease.

New evidence also links exposure to ambient particulate matter concentrations to airway inflammation that in turn produces systemic effects, such as acute phase response with increased blood viscosity and coagulability, as well as increased risk of myocardial infraction in patients with coronary artery disease. Chronic effects of repeated airway inflammation may also cause airway remodeling, leading to irreversible lung disease. Individuals with asthma and chronic

obstructive pulmonary disease may be at even higher risk from repeated exposure to particulate matter.

The Health Effects Institute, in Health Effects Of Particulate Air Pollution: What Does The Science Say Hearing before the Committee On Science, House of Representatives, 107th Congress Of The United States, Second Session, May 8, 2002, confirmed the existence of a link between particulate matter and human disease and death (premature mortality). The data revealed that long-term average mortality rates, even after accounting for the effects of other health effects, were 17% - 26% higher in cities with higher levels of airborne particulate matter. Also, according to Controlling Particulate Matter Under The Clean Air Act: A Menu of Options, prepared by State And Territorial Air Pollution Program Administrators (STAPPA) and Association Of Local Air Pollution Control Officials (ALAPCO) dated July 1996, further reveal that every 10-microgram increase in fine particulate matter per cubic meter produces a 6% increase in the risk of death by cardiopulmonary disease and an 8% increase for lung cancer. Even very low concentrations of particulate matter can increase the risk of early death, particularly in elderly populations with preexisting cardiopulmonary disease.

In October 2002, the Arizona Department Of Health Services-Asthma Control Program-Office Of Nutrition And Chronic Disease Prevention Services, reported that, in 2002 alone, chronic obstructive pulmonary disease cost the United States more than $32 million; a sum not including costs attributable to asthma. In Arizona, deaths attributable to asthma have equaled or exceeded national rates from 1991-1998. In 1998, some 316,200 Arizonans suffered breathing discomfort or asthma related stress.

The Arizona Department Of Environmental Quality (ADEQ) expects that a reduction in particulate matter potentially will create commensurate cost-saving benefits to the general public, by contributing towards reducing these emissions-related health problems. Maricopa County's Rule 316 will help improve the general quality of life for citizens of Arizona, particularly those residing near sources that have reduced particulate matter emissions and other air pollutants associated with nonmetallic mineral processing plants and/or rock product plants.

Health benefits can be expressed as avoided cases of particulate matter-related health effects and assigned dollar value. The EPA used an average estimate of value for each adverse health effect of criteria pollutants. The table on the following page contains valuation estimates from the literature reported in dollars per case reduced. An individual's health status and age prior to exposure impacts his/her susceptibility. At risk persons include those who have suffered a stroke or have cardiovascular disease. Some age cohorts are more susceptible to air pollution than others (i.e., children and the elderly).

Mortality, as listed in the table, refers to statistical deaths or inferred deaths due to premature mortality. The values have been adjusted for inflation. According to the Consumer Price Index-

United States Department Of Labor-Bureau Of Labor Statistics, for all urban consumers, the purchasing power of the dollar has declined about 48% between 1990 and 2003.

A small decline in the risk for premature death will have a certain monetary value for individuals, and as such, individuals will be willing to pay a certain amount to avoid premature death. For instance, if particulate matter emissions are reduced, so that the mortality risk on the exposed population is decreased by one in one-hundred thousand, then among 100,000 persons, one less person will be expected to die prematurely. If the average willingness-to-pay (WTP) per person for such a risk reduction were $75.00, the implied value of the statistical premature death avoided would be 7.5 million.

Valuation Estimates From The Literature Reported In Dollars Per Case Reduced

Adverse Health Effect	1990 Dollars Per Case Valuation	2003 Dollars Per Case Valuation
Mortality	$4,800,000	$7,122,600
Chronic Bronchitis	$260,000	$385,800
Hospital Admissions For Respiratory Conditions	$6,900	$10,240
Hospital Admissions For Cardiovascular Conditions	$9,500	$14,100
Emergency Room Visits For Asthma	$194	$288
Acute Bronchitis	$45	$67
Asthma Attack	$32	$48
Moderate Or Worse Asthma Day	$32	$48
Acute Respiratory Symptom	$18	$27
Upper Respiratory Symptom	$19	$28
Lower Respiratory Symptom	$12	$18
Shortness Of Breath, Chest Tightness, Or Wheeze	$5	$7
Work Loss Day	$83	$123
Mild Restricted Activity Day	$38	$56

Impact Of Rule 316 Revisions On Small Businesses

ARS §41-1055 requires Maricopa County to reduce the impact on small businesses by using certain methods when they are legal and feasible in meeting the statutory objectives of the rulemaking. A small business is defined in ARS §41-1001 as a "concern, including its affiliates, which is independently owned and operated, which is not dominant in its field and which employs fewer than one hundred full-time employees or which had gross annual receipts of less than four million dollars in its last fiscal year. For purposes of a specific rule, an agency may define small business to include more persons if it finds that such a definition is necessary to adapt the rule to

the needs and problems of small businesses and organizations." Maricopa County solicits input from stakeholders (i.e., small businesses) regarding administrative costs associated with compliance with rulemakings and any other information relevant to the economics, small business, and consumer impact statement.

Historically, Rule 316 has contained only emission limitations and not fugitive dust control measures specific to nonmetallic mineral processing plants, asphaltic concrete plants, and concrete plants and/or bagging operations. Sources subject to Rule 316 have been required to implement and/or comply with fugitive dust control measures described in Rule 310 (Fugitive Dust).

The revisions to Rule 316 include fugitive dust control measures specific to nonmetallic mineral processing plants, asphaltic concrete plants, and concrete plants and/or bagging operations. With the revisions to Rule 316, a source subject to Rule 316 would be subject to the fugitive dust control measures in Rule 316 and not in Rule 310. In addition, with the revisions to Rule 316, if a source is subject to Rule 316 but not to the specific fugitive dust control measures in Rule 316, such source would be subject to the fugitive dust control measures in Rule 310.

Because some of the revisions to Rule 316 apply to facilities/businesses that, by definition, are “larger” than small businesses (i.e, facilities with a rated or permitted capacity of 25 tons or more of material per hour and facilities with a minimum of 60 trucks exiting a facility on any day), some small businesses may not be affected by the revisions to Rule 316. Those small businesses that are required to comply with the revisions to Rule 316 may have less strict requirements with which to comply. For example, Rule 316 allows facilities with less than 60 trucks on-site per day to sweep paved facility roads less frequently than larger facilities.

According to the National Stone, Sand and Gravel Association, the crushed stone, sand and gravel industries/aggregate industries produce more than 90% of the crushed stone and 70% of the sand and gravel consumed annually in the United States. More than three billion tons of aggregates were produced in the United States in 2004 at a value of approximately $16 billion. The aggregate industry workforce is made up of about 115,000 men and women. Every $1 million in aggregate sales creates 19.5 jobs and every dollar of industry output returns $1.58 to the economy.

According to the National Mining Association, in 2003, Arizona's mining industry ranked third nationally in total non-fuel mineral production value producing 63,934,000 short tons of sand and gravel at a value of $319,000,000 and producing 10,141,000 short tons of crushed stone at a value of $57,500,000. The value of all non-fuel minerals produced by Arizona’s mining industry in 2003 was $2.1 billion. Arizona's combined direct and indirect economic gain from the mining industry was $16.7 billion, based on 1998 data.

According to the Impact Of The Rock Products Industry On The Arizona Economy, dated October 2003, the Arizona rock products industry, which includes sand and gravel mining firms, crushed stone producers, ready-mix concrete suppliers, asphaltic and concrete product

manufacturers, and cement producers, employs 9,388 Arizona workers, an increase of 87.9% compared to 1991. In 2003, the Arizona rock products industry provided essential materials for an additional 173,950 workers in the construction industry in Arizona. The construction industry accounts for more than 7% of all Arizona jobs, almost one-half of the national average. Most closely linked to the rock products industry are 13,554 concrete contractors and trade workers who rely upon rock products for their basic inputs.

Affected aggregate and related operations will face an additional cost of doing business from purchasing various control equipment and materials, in order to comply with Rule 316. Such purchases, on the other hand, would result in sales to the sectors of utility (Standard Industrial Classification (SIC) Code 49) for water consumption, trucking (SIC 42) for water truck rentals, dust suppressants (SIC 28), and industrial machinery (SIC 35) for rumble grates, wheel washers, and misting systems. The construction sector (SIC 15-17) would benefit from providing installation services for dust equipment.

According to the 29th annual CIT Construction Industry Forecast, in 2005, equipment distributors expect to sell more new equipment and contractors expect to lease and rent more equipment. As demand for rented and leased equipment rises, so will rates. An equal number of distributors and contractors (52%) anticipate that rates will increase in 2005. More than 51% of distributors expect their net income to increase in 2005 and 42% expect it to stay about the same. Contractors anticipate that net income will grow and their total financing costs will increase in 2005. Instead of specializing in one industry segment, producers are expanding to multiple segments, such as ready-mix concrete, aggregate, cement, and asphalt. The ready-mix concrete and block industries were expected to grow 9.5% and the cement industry was expected to grow 11.9%, according to JT Research.

Impact Of Rule 316 Revisions On Consumers

Nonmetallic mineral processing plants and/or rock product plants can either pass-on the additional cost of doing business to consumers or absorb this cost. Local industries that sell more than 50% of their products within the local area are assumed to pass the additional cost of doing business to their product buyers through increases in product prices. According to the South Coast Air Quality Management District final socioeconomic report for proposed Rule 1157 (PM_{10} Emission Reductions From Aggregate And Related Operations) dated December 3, 2004, the product price of stone, clay, and glass products (SIC 32) where most of the concrete batching and concrete product operations belong is expected to increase by 0.030% and 0.025% in the years 2010 and 2020, respectively. The product price of construction (SIC 15-17) where most of the aggregate operations belong is expected to increase by 0.012% and 0.011% in the years 2010 and 2020, respectively.

Conclusion Of Summary Of Economic, Small Business, And Consumer Impact

Maricopa County estimates that, with the implementation of the new requirements in Rule 316, PM_{10} emission reductions will total 27.2% - 5.3% reduction from asphalt batch plants, 2.6% reduction from concrete batch plants, 0.7% reduction from other-concrete batch plants, 4.6% reduction from open storage piles, and 40.7% reduction from unpaved haul roads. Maricopa County predicts that PM_{10} emission reductions would be higher, especially for unpaved haul roads, but trackout emissions are calculated within the on-road mobile equation of the emissions inventory and are not captured in point source emission estimates. Regardless, the Arizona Department Of Environmental Quality (ADEQ) expects that a reduction in PM_{10} emissions potentially will create commensurate cost-saving benefits to the general public by contributing towards reducing emissions-related health problems.

Maricopa County estimates that total annualized cost and cost effectiveness to implement Rule 316 controls as follows:

Facility	**Emissions Reduced** (Tons Per Year - TPY)	**Total Annualized To Implement Rule 316**	**Cost Effectiveness**
Large-Sized Facility	17.11	$101,314 - $116,067	$4,802 - $5,501
Medium-Sized Facility #1	11.7	$92,755 - $107,508	$6,417 - $7,437
Medium-Sized Facility #2	7.71	$86,717 - $101,469	$9,126 - $10,678
Small-Sized Facility	0.61	$22,653 - $44,976	$30,087 - $59,750

Maricopa County expects additional emission reductions from Rule 316 trackout controls; however, these reductions have not been quantified and are not included in the 176.3 tons per year.

Also with the implementation of the new requirements in Rule 316, Maricopa County will increase inspection frequency for sources subject to Rule 316 from one inspection every two years to four inspections per year. Affected aggregate and related operations will face an additional cost of doing business from purchasing various control equipment and materials, in order to comply with Rule 316. Such purchases, on the other hand, would result in sales to the sectors of utility (Standard Industrial Classification (SIC) Code 49) for water consumption, trucking (SIC 42) for water truck rentals, dust suppressants (SIC 28), and industrial machinery (SIC 35) for rumble grates, wheel washers, and misting systems. The construction sector (SIC 15-17) would benefit from providing installation services for dust equipment.

10. Description of the changes between the proposed rules, including supplemental notices, and final rules:

Since the final draft of Rule 316 was published in the Notice Of Proposed Rulemaking on February 4, 2005, the following changes to Rule 316 have been made:

Section 201	Deleted "excavates and". Added "excavating". The definition of affected operation is an operation that "excavates and processes" nonmetallic minerals. Since by definition of nonmetallic mineral processing, processing includes "mining, excavating, separating, combining, crushing, or grinding any nonmetallic mineral" and since excavating is not involved in every operation, then the definition of affected operation can read, in part, "an operation that processes nonmetallic minerals or that is related to such processing and process sources including, but not limited to, excavating…"
Section 226	Deleted definition in its entirety, because the term "geotextile" is not used in Rule 316 – with the deletion of the geotextile lining requirement from Section 307.6(b)(4). See Section 307.6(b)(4) below.
Section 234	Deleted "mined or excavated by such facility". Added "operated".
Section 237	Deleted definition in its entirety. Section 237-Definition Of Open Areas And Vacant Lots was proposed to be added to Rule 316, in order to match Rule 310-Fugitive Dust. However, the term is not used and/or referred to in Rule 316.
Section 250	Added definition of silo, because the term "silo" is used in Rule 316 but is not defined. The definition of silo matches the definition of silo used in South Coast's Rule 1157 (PM_{10} Emission Reductions From Aggregate And Related Operations) adopted January 7, 2005.
Section 255	Deleted definition of storage bin in its entirety, because the term is not used in Rule 316.
Section 263	Deleted definition in its entirety. Section 263-Definition Of Urban Or Suburban Area was proposed to be added to Rule 316, in order to match Rule 310-Fugitive Dust. However, the term is not used and/or referred to in Rule 316.
Section 266	Deleted definition in its entirety. Section 266-Definition Of Wind-Blown Dust was proposed to be added to Rule 316, in order to match Rule 310-Fugitive Dust. However, the term is not used and/or referred to in Rule 316.
Section 306.3(c)(2)(b)	Added the text "if open storage pile is less than eight feet high". As originally proposed, Rule 316 required open storage piles – regardless of size – to be covered, as a fugitive dust control measure. However, since covering open storage piles can be a safety hazard and can be difficult due

	to the non-static/changeable nature of open storage piles, Rule 316 requires covering open storage piles, only if open storage piles are less than eight feet high. If open storage piles are more than eight feet high, then Rule 316 allows other options for fugitive dust control.
Section 307	Added text that allows the owner and/or operator of a facility subject to Rule 316 to develop and implement alternative fugitive dust control measures – alternative to those required by Rule 316.
Section 307.1(d)	Deleted Section 307.1(d)(1) and Section 307.1(d)(2). Moved Section 307.1(d)(3) to introduction of Section 307.1(d). Blading to the top of open storage piles or installing a sprinkler irrigation system on open storage piles were included as options for fugitive dust control. However, since blading to the top of open storage piles can be a safety hazard and since installing a sprinkler irrigation system on open storage piles is difficult due to the non-static/changeable nature of open storage piles, such options should be deleted from Rule 316.
Section 307.3(a)	Deleted Section 307.3(a)(7). Added such text to Section 307.3(a)(2). Combined the fugitive dust control measures - limiting vehicle speeds on haul/access roads and applying water, as necessary.
Section 307.4(d)	Deleted Section 307.4(d). Although deleting Section 307.4(d) deletes the specific fugitive dust control measures for hauling and/or transporting bulk material on-site from Rule 316, such fugitive dust control measures are still required under Rule 316, Section 304, which states "All other affected operations or process sources not specifically listed in Sections 301, 302, or 303 of this rule associated with the processing of nonmetallic minerals, all other fugitive dust emission limitations not specifically listed in Section 306 of this rule, all other fugitive dust control measures not specifically listed in Section 307 of this rule, and all overburden operations shall, at a minimum, meet the provisions of Rule 310 of these rules".
Section 307.6(a)	Added "conditions". Added the following sentence to the end of Section 307.6(a): "For the purpose of this rule, a vehicle wash and/or a cosmetic wash may be substituted for a wheel washer, provided such vehicle wash and/or cosmetic wash has at least 40 pounds per square inch (psi) water spray from the nozzle (the owner and/or operator of the facility shall have a water pressure gauge available on-site to allow verification of such water pressure), meets the definition of wheel washer (i.e., is capable of washing the entire circumference of each wheel of the vehicle), is operated in such a way that visible deposits are removed from the entire circumference of each wheel of the vehicle exiting the

	wash, is installed, maintained, and used in accordance with criteria in Section 307.6(a)(1)-(5) of this rule, and is approved in the Dust Control Plan for the facility".
Section 307.6(b)(4)	Deleted the geotextile lining requirement from Section 307.6(b)(4)(b). Deleted Section 307.6(b)(4)(c) and added such text to Section 307.6(b)(4)(a) and Section 307.6(b)(4)(b).
Section 307.6(e)(1)	Added a provision that street sweeping at the end of each production work shift (an 8-hour operating period based on the 24-hour operating schedule) only has to be done when there is evidence of dirt and/or other bulk material extending a cumulative distance of 12 linear feet or more on any paved internal road. The 12 linear feet trigger should be stringent enough to ensure that re-entrained dust on internal paved roads is controlled.
Section 401	Changed the compliance schedule in Section 401 to reflect the new tentative adoption date of Rule 316.

11. Summary of the comments made regarding the rules and the department's response to them:

The Maricopa County Air Quality Department conducted eight Public Workshops throughout the rulemaking process for Rule 316 – July-December 2004 - and received formal comments during the formal comment period – February-March 2005 - from the Health And Environmental Committee Of The Property Owners And Residential Association Of Sun City West, the Arizona Rock Products Association (ARPA), and the Arizona Chapter Associated General Contractors (AGC). The formal comments and Maricopa County's responses to such formal comments are written below:

Comment #1:

The Environmental Protection Agency (EPA) Method 9 procedure for the "measurement" of opacity, as referred to in Rule 316 draft November 18, 2004, is fraught with possible errors and is totally subjective. There are no tools, only someone's fleeting memory of what 7% opacity looks like (7% opacity is the standard/limit for stack emissions for nonmetallic mineral processing plants per Rule 316, Section 301.1); with and without contrasting background. This is not a measurement. At best it is a guess. (Not only that but this State Implementation Plan (SIP) wants to reduce the number of readings to half that is required by the EPA).

The requirement for opacity applies to whenever a source is in operation, not restricted to sunny days. It should be measured at night as well as day, whenever these plants are operating. Using Method 9 in this and all other Arizona Department Of Environmental Quality (ADEQ) and Maricopa County permits is not a control measure. To continue using this method is ridiculous when the technology required to do it right has been available for the last 30 years. This is the 21st century. ADEQ and Maricopa County should modernize. To continue with the current method is to do nothing. This so-called SIP needs to implement real methods.

The out-of-compliance situation for the Phoenix metro area was not due to opacity exceedances; it was related to health standards set-up by the EPA for PM (particulate material). The out-of-compliance measurements were made by particle monitors. This document doesn't talk about these pollution control methods, only opacity. Because of the cumulative effects on people's health from the pollution, these changes need to happen now and this SIP needs to reflect these changes.

Response #1:

Opacity is the amount of light that is blocked by a medium, like smoke or a tinted window. Opacity is a measurement and is usually stated as a percentage. An opacity of 0% means that all light passes through and an opacity of 100% means that no light passes through. Opacity is important because it gives an indication of the concentration of pollutants leaving a smokestack. Many stationary sources discharge visible emissions into the atmosphere; these emissions are usually in the shape of a plume. A literal definition of "plume opacity" is the degree to which the transmission of light is reduced or the degree to which the visibility of a background as viewed through the diameter of a plume is reduced. In simpler terms, opacity is the obscuring power of a plume, expressed in percent.

State Implementation Plans (SIPs) typically include several types of opacity regulations, which in some cases may differ from the federal opacity standards, in terms of the opacity limits, the measurement method, the test procedure, or the data evaluation technique. For example, some SIP opacity rules limit visible emissions to a specified number of minutes per hour or other time period (time exemption); some limit opacity to a certain level averaged over a specified number of minutes (time averaged); some set opacity limits where no single reading can exceed the standard (instantaneous or "cap"). Regardless of the exact format of the SIP opacity regulations, nearly all use the procedures in Method 9 for conducting visible emissions field observations and for training and certifying visible emissions observers.

Opacity is an EPA reference method that is widely recognized. It is a practical and effective method that can be used by many different people, both on and off site, to monitor a source's compliance. There is extensive documentation in support of the promulgation of Method 9 as well as case law upholding the validity of Method 9 readings. Maricopa County Air Quality Inspectors are trained and certified every six months as Visible Emissions Observers, using standardized training and certification procedures as outlined in 40 Code Of Federal Regulations (CFR), Chapter I, Part 60, Appendix A, Method 9. In addition, it is possible for persons to be certified to conduct night-time Method 9 readings, though the source would need to be illuminated. Rule 316 revisions specifically require nonmetallic mineral processing facilities to implement, maintain, and use fugitive dust control measures at night as required by the approved dust control plan. Furthermore, Rule 316 now includes a modified opacity method that is better tailored to these sources.

Comment #2:

In regards to Rule 316 draft November 18, 2004, an August 29, 2004 report from the law offices of Udall, Shumway, and Lyons, P.L.C. was referenced in the Technical Review And Evaluation Of Application for Arizona Department Of Environmental Quality (ADEQ) air quality permit number 1001684. Privately funded PM_{10} samplers recorded PM_{10} pollution on three sides of a portable hot mix asphalt plant with co-located crushing and screening equipment. Measurements were made from February 6, 2003 to July 20, 2004. The 24-hour and/or the annual limit were exceeded for about half of the time. These results were not correlated with production levels. If the plant was not operating at its full potential to emit, these levels could have been much higher whenever it reached such production levels.

These results show that ADEQ air quality permit number 1001684 and all other permits, as written, don't reflect what exceedances can and probably are happening. That makes ADEQ permits, Maricopa County permits, and Rule 316 inadequate. ADEQ and Maricopa County are given the responsibility of protecting the health of the people in Arizona and Maricopa County, per Arizona Revised Statutes (ARS) §49-401. PM_{10} pollution is serious. In June 2004, the American Cancer Society made a statement that for every 10 microgram/cubic meter increase in PM_{10} pollution level, the mortality risk increases by 12%.

Accurate and continuous PM_{10} and $PM_{2.5}$ monitors need to be placed on all sides of all polluting plants. An alarm system needs to be implemented, so that if exceedances occur, then a plant will be shut-down and the permit parameters will be adjusted downward until testing confirms that pollution levels are below the Environmental Protection Agency (EPA) limits. Because of the cumulative effects on people's health from the pollution, these changes need to happen now and this State Implementation Plan (SIP) needs to reflect these changes.

Response #2:

The Maricopa County Air Quality Department and the Arizona Department Of Environmental Quality (ADEQ) maintain several ambient air monitoring networks within the borders of Maricopa County. The purpose of the ambient air monitoring network is to sample air pollution in a variety of settings, assess the health and welfare effects, and assist in determining sources of air pollution. Additional items such as availability of power, accessibility to site, security, geographic location, and fiscal and personnel resources are also used in determining feasibility of the network design. Since it is physically and fiscally impossible to monitor the air in every location, representative samples must be obtained. These samples are determined by using the monitoring objectives and the spatial measurement scales. The network must be dynamic enough to maintain a current representative sample of the air quality.

Maricopa County publishes an annual network review of the Maricopa County ambient air monitoring network (http://www/maricopa.gov/aq/AIRDAY/docs/REVIEW03.pdf). One of the fundamental purposes of the annual review is to provide the citizens of Maricopa County with

relevant information, so that they may make better decisions about their lives. This information is used in a variety of ways. Most importantly, this information is used to determine the attainment status for parts of Maricopa County. Another way this information is used is to determine permit conditions of new industries. Using the data, mathematical models are created to determine the effectiveness of control programs on pollution levels. Also, other models are created to determine the possible locations of new air monitoring sites and to help in air pollution forecasts. The EPA annually reviews Maricopa County's network review and has found that it meets the EPA requirements for a monitoring network.

The monitoring network is set up to take measurements representative of the nonattainment area. Agencies do not typically install ambient monitors at the fencelines. No agency could afford to do what you have suggest, which is to put monitors around all plants. It would be prohibitively expensive.

As noted above, both the EPA and the Maricopa County Air Quality Department rely on the monitoring network to determine whether ambient concentrations of pollutants are below federal air quality standards. Maricopa County data reported to the EPA's Aerometric Information Retrieval System (AIRS) 1999, 2000, and through three quarters of 2001 showed exceedances the Maricopa County PM_{10} nonattainment area at monitors in the Salt River. Consequently, ADEQ prepared the Final Revised PM_{10} State Implementation Plan for the Salt River Area. That plan identified and implements corrective PM_{10} control provisions in the Salt River Study Area and for similar significant sources in the Maricopa County PM_{10} nonattainment area. The revisions to Rule 316 implement additional requirements for to reduce the likelihood of exceedances and will be incorporated into existing and new permits.

Comment #3:

Regarding Rule 316 draft October 28, 2004, does Regulation III cover other air contaminants besides particulates? If not, then the Regulation III title should be changed to "Control Of Particulate Air Contaminants"?

Response #3:

The Maricopa County Air Pollution Control Regulations are divided into six regulations, ordinances, and appendices:

Regulation I - General Provisions
Regulation II - Permits And Fees
Regulation III - Control Of Air Contaminants
Regulation IV - The Hearing Board
Regulation V - Air Quality Standards And Area Classification
Regulation VI - Emergency Episodes
Ordinances
Appendices

Rules are included under each of the six regulations and are associated with each regulation heading. For example, rules under the heading "Control Of Air Contaminants" regulate one or more than one of the following air contaminants: smoke, vapors, charred paper, dust, soot, grime, carbon, fumes, gases, sulfuric acid mist aerosols, aerosol droplets, odors, particulate matter, windborne matter, radioactive materials, noxious chemicals, or any other material in the outdoor atmosphere. Rule 316 is under the heading "Regulations III (Control Of Air Contaminants)" and regulates the air contaminant "particulate matter".

Comment #4:

Does the conformity section of the Clean Air Act apply to Rule 316 draft October 28, 2004? If so, the source emissions from stacks, processes, fugitive dust, and pollution from associate trucking should be taken into account.

Response #4:

Conformity is defined in Section 176(c) of the Clean Air Act (CAA) of 1990 as conformity to the State Implementation Plan's (SIP's) purpose of eliminating or reducing the severity and number of violations of the national ambient air quality standards (NAAQS) and achieving expeditious attainment of such standards and that such activities will not: (1) cause or contribute to any new violation of any standard in any area; (2) increase the frequency or severity of any existing violation of any standard in any area; and (3) delay timely attainment of any standard or any required interim emission reductions or other milestones in any area.

In November 1993, the Environmental Protection Agency (EPA) promulgated two sets of regulations to implement Section 176(c). First, on November 24, 1993, the EPA promulgated the Transportation Conformity Regulations (applicable to highways and mass transit) to establish the criteria and procedures for determining that transportation plans, programs, and projects which are funded under United States Code Title 23 or the Federal Transit Act. Then, on November 30, 1993, the EPA promulgated regulations, known as the General Conformity Regulations (applicable to everything else), to ensure that other federal actions also conformed to SIPs.

The Clean Air Act of 1990 ties conformity to attainment and maintenance of the NAAQS. Thus, a federal action must not adversely affect the timely attainment and maintenance of the NAAQS or emission reduction progress plans leading to attainment. The Clean Air Act of 1990 includes an emphasis of reconciling the emissions from federal actions with the SIP, rather than simply providing for the implementation of SIP measures. This integration of federal actions and air quality planning is intended to protect the integrity of the SIP by helping to ensure that SIP growth projections are not exceeded, emissions reduction progress targets are achieved, and air quality attainment and maintenance efforts are not undermined. To summarize, conformity does not apply to permits.

Comment #5:

Regarding Rule 316 draft October 28, 2004, nothing is said about what to do about violations and how long will it take before penalties are applied? How much pollution is uncontrolled in the meantime?

Response #5:

Violations are not addressed in Rule 316, because violations are addressed in Maricopa County Air Pollution Control Regulations Rule 100-General Provisions And Definitions. If a source is subject to Rule 316, then it is also subject to Rule 100. Rule 100 states that the Maricopa County Environmental Services Department has authority to enforce and administer the Maricopa County Air Pollution Control Regulations.

As part of its enforcement program, the Maricopa County Environmental Services Department, Air Quality Division (as of January 2005, called "Maricopa County Air Quality Department") issues air quality permits to regulated businesses and determines businesses' compliance with such approved/issued air quality permits. When compliance is not achieved, enforcement action is taken consistent with the Department's Enforcement Policy. According the Department's Enforcement Policy, when a violation is discovered, the Air Quality Inspector issues either a Compliance Status Notification or a Notice Of Violation, if the violation is not corrected at the time of the first inspection. A Notice Of Violation is issued, if the following one of the following conditions exist: (1) If the business does not have an approved permit; (2) If a Compliance Status Notification has been issued and the follow-up inspection reveals the violation has not been corrected and the violation continues; (3) If the violation results in a major deviation from an air quality standard or requirement; (4) If there is evidence of the business willfully or knowingly violating air quality control laws and regulations; and (5) If there is an actual harm or a significant potential to harm any person, the public health, safety, or welfare, and the environment. If a Compliance Status Notification or a Notice Of Violation has been issued, the Air Quality Inspector conducts a follow-up inspection. If, during the follow-up inspection, the Air Quality Inspector determines that the violation has not been corrected, then the Air Quality Inspector forwards all supporting evidence of the violation to the County Attorney.

Upon submittal to the County Attorney's Office, the County Attorney shall review the referral to determine if there is sufficient evidence to support a complaint. If so, the County Attorney may proceed as follows: (1) Settlement Conference With Violator: The County Attorney's Office may request a settlement conference with the violator prior to filing a complaint. If an agreement is reached, the parties will enter into a written settlement agreement that may include monetary penalties, reimbursement costs for investigation and prosecution, violator education, and other sanctions; (2) Filing Of Criminal Complaint: The County Attorney's Office may file a criminal complaint if there is a reasonable likelihood of conviction. The matter may proceed to trial or the parties may enter into an agreement that may include monetary penalties, reimbursement costs for investigation and prosecution, violator education, and other sanctions; (3) Filing Of Civil

Complaint: The County Attorney's Office may file a civil complaint seeking monetary penalties and injunctive relief. After reviewing the submittal, if the County Attorney determines that there is insufficient evidence to support a complaint, the County Attorney may send it back to the Maricopa County Air Quality Department for additional information or may turn it down.

If a business is suspected of violating the Maricopa County Air Pollution Control Regulations, inquiries and/or complaints can be made to Maricopa County's Environmental Complaint Line at 602-506-6616. All air pollution-related inquiries and/or complaints are forwarded to Air Quality Inspectors for investigation.

Comment #6:

The proposed revisions to Rule 316 are one of the lengthiest and most complex ever proposed by Maricopa County. Accordingly, the input of the regulate community (i.e., the Arizona Rock Products Association (ARPA) and the Arizona Chapter Associated General Contractors (AGC)) is critical to developing an effective and workable rule. Unfortunately, despite ARPA's extensive efforts and good faith participation in the rulemaking process, ARPA has not been provided a legitimate opportunity to advocate our industry's positions and it appears that our major concerns have been, for the most part, ignored.

Also, industry's input in some areas of Rule 316 fell on deaf ears, particularly when Maricopa County relayed the industry's suggested control measures to the Environmental Protection Agency (EPA) Region IX. Many of the proposed control measures in Rule 316 are technically and economically infeasible and pose implementation challenges and safety hazards to workers on the job.

Response #6:

The revisions to Rule 316 adopted June 8, 2005 incorporate best available control measures (BACM) and most stringent measures (MSM) that are included in the revised PM_{10} State Implementation Plan (SIP) - the Final Revised PM_{10} State Implementation Plan For The Salt River Area dated August 2004. This rule applies to nonmetallic mineral processing plants, asphaltic concrete plants, concrete plants and/or bagging operations, concrete block and tile plants, and/or rock product plants. The revisions to Rule 316 require these facilities to comply with additional process emission limitations and fugitive dust emission limitations and to implement process controls and fugitive dust control measures.

In order to provide opportunities for public involvement in the rulemaking process for Rule 316, the Maricopa County Air Quality Department conducted eight Public Workshops - July 2004 thru December 2004, received and reviewed comments and recommendations made during the Public Workshops, and created the final draft of Rule 316, which was published in the Arizona Administrative Register on February 4, 2005 in a Notice Of Proposed Rulemaking. In order to receive formal verbal and/or written comments regarding the final draft of Rule 316, the Maricopa County Air Quality Department conducted an oral proceeding on March 10, 2005.

Throughout the rulemaking process, the Maricopa County Air Quality Department has provided the regulated community with opportunities to advocate its position and has not ignored its major concerns. The Maricopa County Air Quality Department reviewed the formal verbal and written comments submitted during the public comment period and at the oral proceeding. The Department has provided responses to these comments in this Notice Of Final Rulemaking. In response to some of the comments, the Maricopa County Air Quality Department is proposing additional rule revisions – in addition to the rule revisions proposed in the Notice Of Proposed Rulemaking.

Comment #7:

Along with other industry partners, the Arizona Chapter Arizona General Contractors (AGC) disputes that the sources subjected to proposed rule changes are significant sources to impose such stringent control measures. There are a number of issues that the AGC has with the current proposed Rule 316, such as: (1) Installation of wheel washer system; (2) Immediate street sweeping of trackout for aesthetic purposes versus emission reduction; (3) Blading stockpiles; (4) Covering stockpiles; (5) Geotextile lining; and (6) 25 feet of cumulative trackout.

Response #7:

In July 2002, the Environmental Protection Agency (EPA) granted Arizona's request to extend the Clean Air Act deadline for attainment of the annual and 24-hour PM_{10} standards from 2001 to 2006. With of this deadline extension, Arizona is required to submit to the EPA a revised PM_{10} State Implementation Plan. The revised PM_{10} State Implementation Plan must include control strategies that meet the best available control measures (BACM) test and the most stringent measures (MSM) test for significant sources and source categories and that demonstrate attainment of the 24-hour federal standard for coarse particulate matter air pollution by December 31, 2006. In addition, the EPA requires that best available control measures (BACM) and the most stringent measures (MSM) be applied to similar sources throughout the Maricopa County serious PM_{10} nonattainment area.

The best available control measures (BACM) analysis and the most stringent measures (MSM) analysis required by the EPA's extension of the PM_{10} standards forced the Arizona Department Of Environmental Quality (ADEQ) to review rules and regulations from other jurisdictions across the United States and incorporate those requirements identified as more stringent than current control measures required by local rules. When competing or similar control measures or work practice standards were deemed BACM or MSM in various parts of the country, ADEQ was allowed some flexibility to determine which control measure/control measures to choose.

ADEQ did not make determinations upon whether or not the emissions from a single source were considered to be significant or not. According to the modeling analysis presented in the Proposed Revised PM_{10} State Implementation Plan (SIP) For The Salt River Area Technical

Support Document, a series of emissions sources were identified as being significant contributors to the overall nonattainment of the study area. While every facility, when considered independently of the sources surrounding it, should be capable of demonstrating compliance with State and County air quality standards, those sources, when considered collectively, contribute to the overall nonattainment of the study area. In the Proposed Revised PM_{10} State Implementation Plan (SIP) For The Salt River Area Technical Support Document, ADEQ has made the demonstration that when all of the proposed control measures and work practice standards are applied collectively, the ambient concentrations of PM_{10} in the study area will demonstrate compliance with the national ambient air quality standards for PM_{10} by 2006. All of the sources cited in the comment are included in the industrial source category.

According to the Final Revised PM_{10} State Implementation Plan For The Salt River Area dated August 2004, "Industrial sources with a variety of particulate matter emissions are located throughout the Salt River SIP Study Area. These emissions are categorized into four groups: windblown stockpiles, windblown cleared areas, industrial point sources, and industrial area sources including emissions from material handling, processes, and driving on haul roads. Considering the application of control technologies in accordance with permit requirements, the total emissions generated by the industrial sources in the Salt River SIP Study Area are approximately 1,054,000 pounds per year, based on actual emissions reported in the Maricopa County Environmental Services Department 2002 emissions inventory and on independent calculations of windblown emissions based on six high-wind days with four hours of high wind per day in a year. The following is a partial list of the industrial activities evaluated in the Salt River SIP Study Area: aluminum melting, brick kilns, asphalt batch plants, concrete batch plants, mulch manufacturing, steel fabrication, sand and gravel mining, furniture manufacturing, concrete block manufacturing, and wastewater treatment. Emissions from all of these types of facilities were included in the emissions inventory and the air quality modeling. Although point source (stack) emissions are 38% of the total industrial emissions (not including windblown), the better dispersion from taller stacks diminishes their effect on air quality. For example, only one of the eight exceedances was stack emissions, as opposed to six significant concentrations for industrial area emissions. Within the industrial area category, the combination of haul roads, material transfer, pile forming and loading, and crushing and screening accounts for 91% of the total. Most of these emissions come from sand and gravel operations and their kindred industries, sometimes known as the "nonmetallic mineral products industry". All industrial sources in the Salt River SIP Study Area were evaluated for compliance with BACM or MSM. Only those sources that did not meet BACM or MSM were evaluated further. Because industrial sources are significant, the vast majority of these emissions come from the nonmetallic mineral products industry, and the current controls on this industry warranted further evaluation, most of the emphasis for the industrial source control measures is on the nonmetallic mineral products processing industry".

Comment #8:

It has been the Arizona Rock Product Association's (ARPA's) understanding that only technically and economically feasible alternative control measures that satisfy the objective outlined in the State Implementation Plan (SIP) would be considered and incorporated into the final rule. Many of the measures in the Notice Of Proposed Rulemaking (NPR) contain options that are not technically or economically feasible and pose implementation challenges from an administrative standpoint. These options include ceasing operations during a wind event, blading to the top of stockpiles in order to maintain dust suppression, and covering stockpiles. Compliance with some of these proposed measures in the Notice Of Proposed Rulemaking would result in safety issues and violation of the rules of other agencies including the Mine Safety And Health Administration.

During the stakeholder process, ARPA provided concrete and abundant information demonstrating that many of the proposals in the NPR are not viable options and would under no circumstances be the option of choice. Several measures are cost-prohibitive. Many are technically infeasible, because either they simply cannot be implemented or they would not result in meaningful emission reductions.

Maricopa County explains that they are only "options", yet if incorporated in Rule 316 they will become most stringent measures (MSM) and best available control measures (BACM). The fact that there may currently be other feasible options available for a specific emission source or activity does not provide the regulatory agency with authorization to also include infeasible measures as "options". These infeasible measures could potentially become the only control measure offered in another jurisdiction that must undergo BACM and MSM analysis in the future. ARPA represents companies that operate nationally and would be susceptible to the non-viable measures somewhere else.

Response #8:

The Maricopa County Air Quality Department revised Rule 316 to add language indicating that covers may be appropriate for storage piles less than eight feet high. The Maricopa County Air Quality Department also removed the specific reference to blading a road to the top of the stockpile and replaced it with text stating, "…install, use, and maintain a water truck or other method that is capable of completely wetting the surfaces of open storage pile(s) in compliance with Section 306.1 and Section 306.5 of this rule." The Maricopa County Air Quality Department, however, left-in the text regarding "ceasing operations in high winds" as the rule applies to other facilities besides ARPA members for which ceasing operations is a reasonable option. Also, ceasing operations is only one of the available control options - not the <u>only</u> available control option.

Comment #9:

This process highlights a need not only for improved communication between the regulating agency and the affected community but also between agencies. At the 11th-hour of the process, the Environmental Protection Agency (EPA) Region IX reviewed the proposed rule, disregarded the Arizona Rock Products Association's (ARPA's) concerns, and proposed additional measures just prior to the publishing of the Notice Of Proposed Rulemaking. This action left ARPA with no opportunity to comment or explain its substantial concerns.

It is surprising and disappointing that the ARPA's valuable and unique understanding of its industry was disregarded during the final development of new requirements. ARPA is particularly disappointed that the public was given no right to respond to the EPA Region IX's ideas, especially since the EPA Region IX did not even attend or participate in this process until the final workshop on January 7, 2005.

It is difficult to have a meaningful dialogue with the EPA Region IX to discuss both sides' issues and concerns, when the EPA Region IX does not participate in the workshops. While many consensus changes were made during the lengthy workshop process, much of the exhaustive efforts between stakeholders and local government conducted in a number of the workshops ended fruitlessly, when the EPA Region IX rejected the available control measures solicited from the public and developed from these workshops.

Response #9:

The EPA, as well, as Maricopa County and the regulated industries must all address the specific requirements of the Clean Air Act for serious PM_{10} nonattainment areas with extension requests. All parties struggled with the concepts and practical application of best available control measures (BACM) and most stringent measures (MSM). The South Coast Air Quality Management District (SCAQMD) also contains a serious PM_{10} nonattainment area with an extension request. SCAQMD was developing a rule at the same time as Maricopa County, which added further complications to Maricopa County's rule revision process. Unfortunately, SCAQMD completed their rule development process for aggregate operations in January of 2005 ahead of Maricopa County adding additional measures that the EPA, Maricopa County, and local stakeholders must address. Maricopa County also remains subject to the timelines necessary for implementing measures under the SIP-call leading the SIP revision for the Salt River Monitor Area. The Maricopa County Air Quality Department has made changes to the rule between proposal and presentation to the Board Of Supervisors.

The Maricopa County Air Quality Department has no authority to require the EPA to participate more fully in the rulemaking process and/or in the comment and response period. The EPA participates with the state to identify which portions of the State Implementation Plan (SIP) need to be revised for reasons such as incorporating changes in Federal regulations or strengthening measures used to maintain the national ambient air quality standards. The state then initiates a public consultation process (the comment and response period) that allows anyone who

is interested to provide comments on proposed regulations. Once these regulations are adopted as final by the state, they are submitted to the EPA for Federal approval. The EPA, then, compares the state's revised regulations to establish Federal criteria to ensure those regulations meet all Federal criteria. (Although the EPA participates early in the rule revision process, the subsequent public review process can occasionally mean the state makes certain revisions to the proposed regulations. The EPA makes sure that any revisions still meet all applicable criteria after the state regulations are finalized). The criteria the EPA uses are contained in a variety of documents, such as the Clean Air Act (CAA) and the Code Of Federal Regulations (CFR). When the state's proposals fulfill Federal requirements, the EPA proposes approval and posts such approval in the Federal Register.

Comment #10:

Maricopa County has not made a compelling case, legally, financially, or technically, to justify why new measures proposed in Rule 316 should be employed nor have they provided the industry with meaningful data that supports the cost effectiveness of a given measure, in light of such measure's overall ability to reduce emissions. Maricopa County has failed to provide a comprehensive economic and technical review of the candidate control measures, as required by the Administrative Procedures Act. See Arizona Revised Statutes (ARS) §49-471.04, §49-471.05, and §41-1055. See Portland Cement Association v. Ruckleshaus, 486 F. 2d 375, 393 (D.C. Cir. 1973) – "It is not consonant with the purpose of a rulemaking proceeding to promulgate rules on the basis of inadequate data, or on data that, to a critical degree, is known only to the agency". See also Union Oil Co. Of California v. Federal Power Commission, 542 F. 2d 1036, 1041 (9th Cir. 1976).

Response #10:

Maricopa County disagrees with the commenter. The Final Revised PM_{10} State Implementation Plan (SIP) For The Salt River Area prepared by the Arizona Department Of Environmental Quality (ADEQ) identifies industrial sources as a significant contributor to exceedances of the PM_{10} standard triggering the best available control measures (BACM) and most stringent measures (MSM) requirements for these industrial sources. ADEQ did not make determinations upon whether or not the emissions from a single source were considered to be significant or not. According to the modeling analysis presented in the Proposed Revised PM_{10} State Implementation Plan (SIP) For The Salt River Area Technical Support Document, a series of emissions sources were identified as being significant contributors to the overall nonattainment of the study area. While every facility, when considered independently of the sources surrounding it, should be capable of demonstrating compliance with State and County air quality standards, those sources, when considered collectively, contribute to the overall nonattainment of the study area. In the Proposed Revised PM_{10} State Implementation Plan (SIP) For The Salt River Area Technical Support Document, ADEQ has made the demonstration that when all of the proposed control

measures and work practice standards are applied collectively, the ambient concentrations of PM_{10} in the study area will demonstrate compliance with the national ambient air quality standards for PM_{10} by 2006.

The plan also contains a list of candidate BACM and MSM measures. Several of the measures the commenter objects to, such as wheel washers, are in use at facilities in other parts of the country. For other measures, the commenter has supplied, since these comments were submitted, the Maricopa County Air Quality Department with information documenting safety concerns regarding blading roads to the top of stockpiles. As a result the Maricopa County Air Quality Department has removed that specific provision from the rule. The Maricopa County Air Quality Department also added qualifying text that covers are an appropriate control option for open storage piles less than eight feet high.

The BACM analysis and the MSM analysis required by the Environmental Protection Agency's (EPA's) extension of the PM_{10} standards forced the ADEQ to review rules and regulations from other jurisdictions across the United States and incorporate those requirements identified as more stringent than current control measures required by local rules. When competing or similar control measures or work practice standards were deemed BACM or MSM in various parts of the country, ADEQ was allowed some flexibility to determine which control measure/control measures to choose.

Furthermore, most of the fugitive dust work practice standards listed in Rule 316 are not new; they are options in Rule 310. However, Rule 316 does restrict the number of options, in some instances does require combinations of options, and for trackout does reduce the length of trackout to no more the 25 feet. The costs of these work practices were analyzed during the development of Rule 310. The economic analysis does include some updated costs. Item #9-Summary Of The Economic, Small Business, And Consumer Impact in the Notice Of Proposed Rulemaking for Rule 316 did include cost estimates for available controls for an affected facility. Other paragraphs in Item #9 also provided the emissions inventory for affected sources and the estimated percent reduction in emissions associated with the available controls.

Maricopa County has expanded the economic analysis in this Notice Of Final Rulemaking to include a range of cost effectiveness values and nonmetallic mineral processing industry-specific detail in the emissions inventory discussion. Rule effectiveness is an indicator of how consistently sources maintain compliance with a rule. Rule effectiveness accounts for breakdowns, human errors, and operational oversights. While Maricopa County does not require industry to account for rule effectiveness when completing emissions inventories, Maricopa County and the Arizona Department Of Environmental Quality (ADEQ) must account for it when modeling for attainment and estimating the impact of rules. The Environmental Protection Agency (EPA) default rule effectiveness is 80% and is the goal to which Maricopa County is striving in order to attain the PM_{10} standard. Reaching 80% is a challenge in a program that relies heavily on work practice

requirements to comply with standards. Maricopa County and ADEQ estimate rule effectiveness ranges from 60% - 99% depending on the process and the control. The South Coast Air Quality Management District assumes 20%.

Maricopa County estimates that, with the implementation of the new requirements in Rule 316, PM_{10} emission reductions will total 27.2% - 5.3% reduction from asphalt batch plants, 2.6% reduction from concrete batch plants, 0.7% reduction from other-concrete batch plants, 4.6% reduction from open storage piles, and 40.7% reduction from unpaved haul roads. Maricopa County predicts that PM_{10} emission reductions would be higher, especially for unpaved haul roads, but trackout emissions are calculated within the on-road mobile equation of the emissions inventory and are not captured in point source emission estimates. Regardless, the Arizona Department Of Environmental Quality (ADEQ) expects that a reduction in PM_{10} emissions potentially will create commensurate cost-saving benefits to the general public by contributing towards reducing emissions-related health problems.

Maricopa County estimates that total annualized cost and cost effectiveness to implement Rule 316 controls as follows:

Facility	**Emissions Reduced** (Tons Per Year - TPY)	**Total Annualized To Implement Rule 316**	**Cost Effectiveness**
Large-Sized Facility	17.11	$101,314 - $116,067	$4,802 - $5,501
Medium-Sized Facility #1	11.7	$92,755 - $107,508	$6,417 - $7,437
Medium-Sized Facility #2	7.71	$86,717 - $101,469	$9,126 - $10,678
Small-Sized Facility	0.61	$22,653 - $44,976	$30,087 - $59,750

Maricopa County expects additional emission reductions from Rule 316 trackout controls; however, these reductions have not been quantified and are not included in the 176.3 tons per year.

In summary, the EPA granted, in July 2002, Arizona's request to extend the Clean Air Act deadline for attainment of the annual and 24-hour PM_{10} standards from 2001 to 2006. With of this deadline extension, Arizona is required to submit to the EPA a revised PM_{10} State Implementation Plan. The revised PM_{10} State Implementation Plan must include control strategies that meet the best available control measures (BACM) test and the most stringent measures (MSM) test for significant sources and source categories and that demonstrate attainment of the 24-hour federal standard for coarse particulate matter air pollution by December 31, 2006. In addition, the EPA requires that BACM and MSM be applied to similar sources throughout the Maricopa County serious PM_{10} nonattainment area. Maricopa County is revising Rule 316 in order to incorporate BACM and MSM as described in the Final Revised PM_{10} State Implementation Plan For The Salt River Area dated August 2004.

Comment #11:

In the October meeting, it was discussed that overburden needed to be addressed for several reasons, which included: (1) Is the removal of overburden covered under Rule 310 or Rule 316? (2) Which party is responsible for emissions, when removing overburden – the operation or contractor? (3) Does the contractor, who is removing overburden, need an earthmoving permit separate from the dust control permit of the site operations? (4) Is the removal of overburden issue contingent on when a mine officially becomes active according to State Mine Inspector's Office? (5) Does the definition of an open storage pile need to be addressed in Rule 316? (6) Should the management/responsibility of overburden be based on a contract between the owner and contractor? Unfortunately, Maricopa County's comments after the November 22, 2005 meeting did not address these questions.

Response #11:

Re Question (1): Overburden operation is defined in Rule 316, Section 239 as "an operation that removes and/or strips soil, rock, or other materials that lie above a natural nonmetallic mineral deposit and/or in-between a natural nonmetallic mineral deposit". The requirements/provisions for overburden operations are described in Rule 316, Section 304-Other Associated Operations, in part, as: "…all overburden operations shall, at a minimum, meet the provisions of Rule 310 of these rules".

Re: Question (2): The determination of responsible party for overburden removal will be made on a case-by-case basis. Based on the contractual relationship, interdependence of activities and timing, the owner and/or operator is frequently responsible for dust from overburden removal.

Re: Question (3): The contractor, who is removing overburden, does not need an earthmoving permit separate from the Dust Control Plan for the site operations. However, the Dust Control Plan for the site operations should include dust control measures to be implemented while overburden is being removed and dust control measures to be implemented if overburden is to be stockpiled on-site. The contractor must comply with such Dust Control Plan.

Re: Question (4): An approval or an acknowledgment of Plan Of Operations from the State Mine Inspector's Officer is a necessary step in the permitting process. Such an approval alone does not allow mining operations/overburden removal to begin. All necessary environmental and health and safety permits must be issued before mining operations/overburden removal can begin.

Re: Question (5): The definition of open storage pile needs to be included in Rule 316 (see Section 236), because the term open storage pile is used in Rule 316.

Re: Question (6): The determination of responsible party for overburden removal will be made on a case-by-case basis. Based on the contractual relationship, interdependence of activities and timing, the owner and/or operator is frequently responsible for dust from overburden removal.

Comment #12:

According to South Coast's Final Staff Report regarding water consumption for unloading/loading/transferring activities and process equipment, the average yearly water consumption for 29 aggregate operations would require 353,802 gallons per day or $367,954 a year to remain in compliance with South Coast Rule 1157, which is not dissimilar to proposed Rule 316. It would also stand to reason that those numbers would be higher due to meteorological conditions specific to Arizona.

The West Coast Environmental (WCE) report states that water usage requirements as stated in South Coast's Final Staff Report were underestimated and should have been 7.5 times higher for a revised total of 2,653,615 gallons per day at a cost of $3,311,586 per year. In a time when facilities are required to conserve water per the Department Of Water Resources, this seems to be a no-win situation. The water rights at many facilities are not sufficient to handle these requirements. Accordingly, any proposed rule provision that mandates a specific water application amount or rate irrespective of the facility's compliance with the 20% opacity standard is technically and economically infeasible.

Response #12:

Where water is an option for dust control in Rule 316, typically the rule states that water is to be applied "as necessary" and does not mandate a specific water application amount or rate. However, there are two sections in Rule 316 that specify percent soil moisture content for a fugitive dust control measure. Maintaining a 1.5% soil moisture content is an option for controlling fugitive dust from open storage piles (see Rule 316, Section 307.1(b)(2)) and is an option for controlling fugitive dust from bulk material that is being transported on-site within the property line of a facility (see Rule 316, Section 307.4(d)(3)).

With the revisions to Rule 316, Rule 316 will require compliance with emission limitations and the implementation of process controls and fugitive dust control measures by any commercial and/or industrial nonmetallic mineral processing plant and/or rock product processing plant. Using dust suppressants instead of water to control fugitive dust from active operations, from stacking, loading, and unloading open storage piles, from disturbed surface areas, and from haul/access roads is an acceptable option in Rule 316.

Comment #13:

In the Notice Of Proposed Rulemaking, Maricopa County has failed to provide a complete analysis of the costs associated with the proposed revisions to Rule 316 and has not included at all a description/explanation of the benefits associated with the proposed revisions to Rule 316. The economic information that has been included in the Notice Of Proposed Rulemaking is insufficient and carries burdensome financial ramifications.

Response #13:

In the Notice Of Final Rulemaking for Rule 316, Maricopa County has provided more information regarding available control technologies and estimates of reductions from nonmetallic

mineral processing facilities from Rule 316 implementation. Furthermore, most of the fugitive dust work practice standards listed in Rule 316 are not new; they are options in Rule 310. However, Rule 316 does restrict the number of options, in some instances does require combinations of options, and for trackout reduces the length of trackout to no more than 25 feet. The costs of these work practices were analyzed during the development of Rule 310.

The Notice Of Proposed Rulemaking for Rule 316 did discuss the health care costs and did include the statement, "This conclusion means that even small emission reductions can have immediate benefits to the long-term respiratory health of children living in polluted communities". In the Notice Of Final Rulemaking for Rule 316, Maricopa County has clarified further that reducing health care costs is a benefit of Rule 316 and has added text quantifying health effects.

Comment #14:

In the Notice Of Proposed Rulemaking (pages 21-24), Maricopa County included estimated costs of some of the recommended control technology associated with the implementation of proposed Rule 316, including paving ($350,000 per mile), rumble grates ($5,500 each installed-most properties would require two rumble grates), wheel washers ($60,000 each installed-most properties would require two wheel washers), and stabilizers ($16,107 per mile). These costs do not include water, PM_{10} efficient sweeper rental or purchase, pneumatic control devices, training costs/man-hours, geotextile material, and maintenance of the additional control technology.

Response #14:

In the Notice Of Final Rulemaking for Rule 316, Maricopa County has provided more information regarding available control technologies, their costs, and emission reduction estimates from nonmetallic mineral processing facilities from Rule 316 implementation.

Comment #15:

In the Notice Of Proposed Rulemaking, Maricopa County failed to identify the supposed benefits from various control technologies. For example, the Notice Of Proposed Rulemaking fails to identify the emission reductions expected from the imposition of various control technologies and also fails to calculate the expected reduction in emissions per dollar spent in control technology. Without this analysis, it is impossible to determine whether a candidate measure is effective at all – let alone cost effective.

Response #15:

In the Notice Of Final Rulemaking for Rule 316, Maricopa County has provided more information regarding available control technologies, their costs, and emission reduction estimates from nonmetallic mineral processing facilities from Rule 316 implementation.

Comment #16:

In the Notice Of Proposed Rulemaking (page 17), Maricopa County included information and studies purportedly relevant to the Notice Of Proposed Rulemaking. Relevant studies and reports

that the Arizona Rock Products Association (ARPA) submitted were not added to these citations and ARPA questions whether they were ever reviewed.

Further, one document that did address emissions analysis and control measure efficiency, the South Coast Air Quality Management District's Final Staff Report, included, according to the study performed by West Coast Environmental (WCE), overestimates in emissions factors. WCE found numerous significant errors in the emissions inventory, including: (1) improper use of an industry emissions survey; (2) incorrect selection of emission factors, including failure to use current EPA-approved AP-42 factors; (3) improper material moisture content assumptions; (4) application of control efficiencies across all emission units at all facilities rather than consideration of which facilities implement controls and what level of control can be achieved at each source area; (5) use of annual hours of operation rather than annual throughput; (6) incorrect selection of reporting units; (7) inconsistent application of assumptions and procedures from one facility as compared with others; and (8) incorrect or incomplete understanding of aggregate production operations within the District. The South Coast Air Quality Management District's Final Staff Report is being used by the South Coast Air Quality Management District (South Coast) as well as by Maricopa County to determine emissions inventory analysis, which is a grave concern to ARPA.

Response #16:

Most of the fugitive dust work practice standards listed in Rule 316 are not new; they are options in Rule 310. However, Rule 316 does restrict the number of options, in some instances does require combinations of options, and for trackout reduces the length of trackout to no more than 25 feet. The costs of these work practices were analyzed during the development of Rule 310. The economic analysis did include some updated costs. Item #9-Summary Of The Economic, Small Business, And Consumer Impact in the Notice Of Proposed Rulemaking for Rule 316 did include cost estimates for available controls for an affected facility. Other paragraphs in that section also provided the emission estimates for affected sources and the estimated percent reduction in emissions associated with implementation of Rule 316.

Maricopa County has expanded the economic analysis in this Notice Of Final Rulemaking to include a range of cost effectiveness values and nonmetallic mineral processing industry-specific detail in the emission inventory discussion. Rule effectiveness is an indicator of how consistently sources maintain compliance with a rule. Rule effectiveness accounts for breakdowns, human errors, and operational oversights. While Maricopa County does not require industry to account for rule effectiveness when completing emissions inventories, Maricopa County and the Arizona Department Of Environmental Quality (ADEQ) must account for rule effectiveness when modeling for attainment and estimating the impact of rules. The Environmental Protection Agency (EPA) default rule effectiveness is 80% and is the goal to which Maricopa County is striving in order to attain the PM_{10} standard. Reaching 80% is a challenge in a program that relies heavily on

work practice requirements to comply with standards. Maricopa County estimates rule effectiveness ranges from 60% - 99%, while the South Coast Air Quality Management District assumes 20%.

Maricopa County estimates that, with the implementation of the new requirements in Rule 316, PM_{10} emission reductions will total 27.2% - 5.3% reduction from asphalt batch plants, 2.6% reduction from concrete batch plants, 0.7% reduction from other-concrete batch plants, 4.6% reduction from open storage piles, and 40.7% reduction from unpaved haul roads. Maricopa County predicts that PM_{10} emission reductions would be higher, especially for unpaved haul roads, but trackout emissions are calculated within the on-road mobile equation of the emissions inventory and are not captured in point source emission estimates. Regardless, the Arizona Department Of Environmental Quality (ADEQ) expects that a reduction in PM_{10} emissions potentially will create commensurate cost-saving benefits to the general public by contributing towards reducing emissions-related health problems.

Maricopa County estimates that total annualized cost and cost effectiveness to implement Rule 316 controls as follows:

Facility	**Emissions Reduced** (Tons Per Year - TPY)	**Total Annualized To Implement Rule 316**	**Cost Effectiveness**
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Medium-Sized Facility #2	7.71	$86,717 - $101,469	$9,126 - $10,678
Small-Sized Facility	0.61	$22,653 - $44,976	$30,087 - $59,750

Maricopa County expects additional emission reductions from Rule 316 trackout controls; however, these reductions have not been quantified and are not included in the 176.3 tons per year.

Comment #17:

In the Notice Of Proposed Rulemaking (page 21), Maricopa County referred to enclosed conveyors. The Arizona Rock Products Association (ARPA) understands that enclosed conveyors are no longer a consideration, but enclosed conveyors never should have been considered when, as stated in the Notice Of Proposed Rulemaking, "have not been employed by any of the aggregate operations in the United States". Most stringent measures (MSM) should be pertinent to a specific industry and not transposed from an unrelated industry. Enclosed conveyors should not be mentioned in the Notice Of Proposed Rulemaking.

Response #17:

In the Notice Of Final Rulemaking for Rule 316, Maricopa County has removed the description of enclosed conveyors from Item #9-Summary Of The Economic, Small Business, And Consumer Impact.

Comment #18:

In the Notice Of Proposed Rulemaking (page 29), the total emissions generated by industrial sources numbers are misleading for the following reasons: (1) the emissions are for all industrial sources; (2) the numbers were reported in 2002; (3) emissions control measures have vastly improved; (4) these numbers include high wind days for which Maricopa County should have received exemptions.

Response #18:

The numbers (for total emissions generated by industrial sources) are for 2002, because the technical analysis for the Final Revised PM_{10} State Implementation Plan For The Salt River Area began in 2003; 2002 was the most recent inventory available. The Notice Of Proposed Rulemaking for Rule 316 also included the specific annual emissions associated with Rule 316 (page 26). Maricopa County has not conducted another rule effectiveness study to compare control measures and compliance rates for this industry. The last study was conducted in 2003 and included extensive observations of activities in the Salt River monitor study area.

Contributions from industrial sources to PM_{10} exceedances were highest under low wind conditions. While reductions in PM_{10} emissions from sources subject to Rule 316 will occur under high wind conditions, the reductions will be more significant under low wind conditions. Furthermore, even if high wind exceedance days meet the criteria for natural exceptional events, residents still experience the same health effects at the same level of exposure that they experience under low wind conditions. Reductions in PM_{10} also benefit residents during high wind events.

Comment #19:

In the Notice Of Proposed Rulemaking, Maricopa County cited South Coast's final proposed Rule 1157 (PM_{10} Emission Reductions From Aggregate And Related Operations) dated December 3, 2004 as justification for numerous proposed requirements. South Coast adopted this rule on January 7, 2005. The California Mining Association (CMA) filed suit over South Coast's adoption of this rule on February 9, 2005.

Because South Coast's rule has been challenged in California Superior Court, Maricopa County cannot cite it as the justification for new Maricopa County requirements. In fact, many of the reasons South Coast's rule has been challenged are reasons cited by the Arizona Rock Products Association (ARPA) as problems with the Notice Of Proposed Rulemaking.

Fundamentally, both South Coast's challenged rule and the Notice Of Proposed Rulemaking contain requirements that are not technically or economically feasible. For example, as stated in the CMA's Verified Petition For Writ Of Mandate And Complaint For Declaratory And Injunctive Relief, South Coast's final proposed Rule 1157 emissions inventory is based on un-scientific,

voluntary, and un-verified surveys resulting in an emissions inventory inflated by a factor of almost twenty (20).

Response #19:

Until the California Superior Court resolves the challenge made to South Coast's Rule 1157-PM_{10} Emission Reductions From Aggregate And Related Operations as adopted January 7, 2005, the standards and fugitive dust control measures in Rule 1157 are still lawful and Maricopa County can cite Rule 1157 as the justification for new Rule 316 requirements. If the California Superior Court deems any and/or all of the standards and/or fugitive dust control measures in Rule 1157 as un-lawful, then Maricopa County will conduct another rulemaking process to revise Rule 316 accordingly.

Comment #20:

In the Notice Of Proposed Rulemaking, Maricopa County stated that proposed Rule 316 "must include control strategies that meet the best available control measure (BACM) test and the most stringent measure (MSM) test for significant sources and source categories". The Arizona Rock Products Association (ARPA) does not disagree with this statement. ARPA disputes that the sources subject to proposed rule changes are significant sources.

In particular, ARPA has submitted documentation demonstrating that storage piles, material handling, and transfer points are not significant sources of particulate matter. Further, to the extent trackout and other fugitive dust sources are significant sources, these sources are already governed by Maricopa County's Rule 310 (Fugitive Dust), which has already been deemed to meet BACM and MSM. Accordingly, revisions to Rule 310 fugitive dust control requirements are duplicative and un-necessary. In fact, it is inappropriate and unlawful to revise Rule 310 requirements by incorporating additional restrictions on trackout and other fugitive dust sources in Rule 316.

As currently written, Rule 316, like the federal New Source Performance Standards, applies only to nonmetallic mineral mining process sources. Neither imposes requirements on sources, such as storage piles, roads, and trackout. It is irrelevant that other jurisdictions may include restrictions on fugitive sources in their rules for mining process sources. Maricopa County regulates process and fugitive dust sources separately and Maricopa County does not need to revise fugitive dust regulations as incorporated in Rule 310.

In fact, Maricopa County's proposal to include fugitive dust control requirements in both Rule 310 and Rule 316 would create a confusing and occasionally contradictory suite of requirements that will inevitably lead to compliance un-certainty and enforcement inconsistency. Because a BACM analysis and an MSM analysis are not now required for these sources, Maricopa County's purported justification for many of the proposed requirements in the Notice Of Proposed Rulemaking is invalid. The Notice Of Proposed Rulemaking violates Arizona Revised Statutes (ARS) §49-112.

Response #20:

The Arizona Department Of Environmental Quality (ADEQ) did not make determinations upon whether or not the emissions from a single source or individual activities at a source were considered to be significant or not. According to the modeling analysis presented in the Proposed Revised PM_{10} State Implementation Plan (SIP) For The Salt River Area Technical Support Document, a series of emissions sources were identified as being significant contributors to the overall nonattainment of the study area. While every facility and each activity, when considered independently of the sources surrounding it, should be capable of demonstrating compliance with State and County air quality standards, those sources, when considered collectively, contribute to the overall nonattainment of the study area. In the Proposed Revised PM_{10} State Implementation Plan (SIP) For The Salt River Area Technical Support Document, ADEQ has made the demonstration that when all of the proposed control measures and work practice standards are applied collectively, the ambient concentrations of PM_{10} in the study area will demonstrate compliance with the national ambient air quality standards for PM_{10} by 2006.

The best available control measures (BACM) analysis and the most stringent measures (MSM) analysis required by the EPA's extension of the PM_{10} standards forced ADEQ to review rules and regulations from other jurisdictions across the United States and incorporate those requirements identified as more stringent than current control measures required by local rules. When competing or similar control measures or work practice standards were deemed BACM or MSM in various parts of the country, ADEQ was allowed some flexibility to determine which control measure/control measures to choose.

As currently written, Rule 316 does not implement MSM for the nonmetallic mineral processing sources, as the serious area PM_{10} nonattainment area plan did not identify those sources as significant contributors. ADEQ identified the requirement that prohibits visible emissions from crossing the property line. Therefore, that new opacity requirement will apply to both process emissions and fugitive dust emissions in addition to the other opacity standards in the rule. The fugitive dust opacity standards from Rule 310 carried over to Rule 316 remain applicable to sources of emission such as, but not limited to, unpaved haul roads and storage piles. Each of these opacity requirements are included in Rule 316 in order to provide Maricopa County and ADEQ with reasonable assurance that the particulate matter emissions limitations associated with such activities are being met on a continuous basis. The requirement that no visible emissions cross the property boundary is included to provide Maricopa County and ADEQ with reasonable assurance that emissions from the facility in general are well controlled and, when considered with the emissions of other facilities, are not contributing significantly to the area's nonattainment status. The work practice requirements included in Rule 316 are some of the methods by which the owner and/or operator of a facility can reduce emissions and provide Maricopa County with reasonable assurance that the non-visible emissions at the property boundary requirement is being complied with on a continuous basis. Since the property boundary opacity standard applies to

fugitive dust activities, Maricopa County included fugitive dust control measures in Rule 316 to clearly express all requirements that apply to the fugitive dust sources at nonmetallic mineral processing sources.

It is not inappropriate or unlawful to revise rule requirements based on the revised Salt River SIP to implement BACM and MSM and obtain the emission reductions necessary to demonstrate attainment of the PM_{10} standard. Furthermore, since significant contribution is identified at the industrial source category and not the individual source or source activity level, Maricopa County's justification is valid and complies with Arizona Revised Statutes (ARS) §49-112.

Comment #21:

On February 9, 2005, the California Mining Association (CMA) filed suit regarding South Coast's adoption of Rule 1157. Until the CMA's judicial appeal has been fully and completely adjudicated, it is premature and unlawful for Maricopa County to assert that South Coast Rule 1157 requirements are best available control measures (BACM) and most stringent measures (MSM).

Response #21:

Until the California Superior Court resolves the challenge made to South Coast's Rule 1157-PM_{10} Emission Reductions From Aggregate And Related Operations as adopted January 7, 2005, the standards and fugitive dust control measures in Rule 1157 are still lawful and Maricopa County can cite Rule 1157 as the justification for new Rule 316 requirements. If the California Superior Court deems any and/or all of the standards and/or fugitive dust control measures in Rule 1157 as un-lawful, then Maricopa County will conduct another rulemaking process to revise Rule 316 accordingly.

Comment #22:

The Arizona Rock Products Association (ARPA) disagrees with Maricopa County's definition of most stringent measures (MSM), which is as follows: "MSM are the most stringent measures that are included in any state implementation plan and/or that are being implemented in any state and/or that are economically and technologically feasible for the nonattainment area in question".

Maricopa County substitutes the words "and/or" and erroneously makes economic and technologic feasibility an option for MSM, not a requirement. In doing so, Maricopa County's definition of MSM contradicts the Clean Air Act, conflicts with the Environmental Protection Agency's (EPA's) own MSM definition, violates multiple state statutes, and, in effect, would force existing sources to implement lowest achievable emission rate (LAER)-type controls that should only be applicable in accordance with new source review in nonattainment areas.

According to the EPA in 65 Federal Register (FR) 19968, most stringent measures are "the maximum degree of emission reduction that has been required or achieved from a source or source

category in other State Implementation Plans (SIPs) or in practice in other states and can feasibly be implemented in the area".

Accordingly, Maricopa County must consider both economic and technical feasibility when identifying MSM. It is not enough to simply include a measure used in another jurisdiction without conducting a Maricopa County-specific economic and technical feasibility analysis. The reasons Arizona law requires a Maricopa County-specific analysis are simple and straightforward. First, there is no guarantee that other jurisdictions conducted the analyses required by Arizona law, when they adopted various requirements. Maricopa County's own attempt to include infeasible controls as options in the Notice Of Proposed Rulemaking demonstrates that a jurisdiction might include requirements that are neither economically nor technically feasible. Second, a fundamental tenet of due process requires that affected members of the public be provided a meaningful opportunity to comment on proposed rules. ARPA's and its members' due process rights are simply not upheld by another jurisdiction's rulemaking process.

By failing to conduct an analysis of the economic and technological feasibility of proposed measures, proposed Rule 316 violates the following list of statutes, preambles, and SIPs (this list is not exhaustive): (1) CAA §188(e)-Statute requires the State to demonstrate that "the plan for that area includes the most stringent measures that are included in the implementation plan of any State or are achieved in practice by any State, and can feasibly be implemented in the area". (2) 67 FR 48723. (3) A.R.S. §41-1055-Statute requires Impact Statement that includes "…the probable costs and benefits to businesses directly affected by the proposed rulemaking". (4) A.R.S. §49-112-Statute requires "credible evidence that the rule, ordinance, or other regulation is…necessary to prevent a significant threat to public health or the environment that results from peculiar local condition and is technically and economically feasible" or required by federal statute. (5) A.R.S. §49-471.05-Statute requires that rule preamble include "economic, small business, and consumer impact statement". (6) Final Revised State Implementation Plan For The Salt River Area-Plan defines MSM as "the most stringent measures included in any state implementation plan or being implemented in any state that are economically and technologically feasible for the nonattainment area in question".

As previously discussed, the Notice Of Proposed Rulemaking fails to provide a sufficient analysis of the economic and technological feasibility of proposed control measures. Adoption of Rule 316 without this analysis would be unlawful.

Response #22:

In July 2002, the Environmental Protection Agency (EPA) granted Arizona's request to extend the Clean Air Act deadline for attainment of the annual and 24-hour PM_{10} standards from 2001 to 2006. With of this deadline extension, Arizona is required to submit to the EPA a revised PM_{10} State Implementation Plan. The revised PM_{10} State Implementation Plan must include control strategies that meet the best available control measures (BACM) test and the most

stringent measures (MSM) test for significant sources and source categories and that demonstrate attainment of the 24-hour federal standard for coarse particulate matter air pollution by December 31, 2006. In addition, the EPA requires that best available control measures (BACM) and the most stringent measures (MSM) be applied to similar sources throughout the Maricopa County serious PM_{10} nonattainment area.

The best available control measures (BACM) analysis and the most stringent measures (MSM) analysis required by the EPA's extension of the PM_{10} standards forced the Arizona Department Of Environmental Quality (ADEQ) to review rules and regulations from other jurisdictions across the United States and incorporate those requirements identified as more stringent than current control measures required by local rules. When competing or similar control measures or work practice standards were deemed BACM or MSM in various parts of the country, ADEQ was allowed some flexibility to determine which control measure/control measures to choose. The standards ADEQ drew from were not LAER standards. ADEQ drew from rules in Texas, Florida, and South Coast Air Quality Management District that are applicable to existing sources not just new sources and from BACT determinations for new sources following the EPA guidance.

According to the modeling analysis presented in the Proposed Revised PM_{10} State Implementation Plan (SIP) For The Salt River Area Technical Support Document, a series of emissions sources were identified as being significant contributors to the overall nonattainment of the study area. While every facility, when considered independently of the sources surrounding it, should be capable of demonstrating compliance with State and County air quality standards, those sources, when considered collectively, contribute to the overall nonattainment of the study area. In the Proposed Revised PM_{10} State Implementation Plan (SIP) For The Salt River Area Technical Support Document, ADEQ has made the demonstration that when all of the proposed control measures and work practice standards are applied collectively, the ambient concentrations of PM_{10} in the study area will demonstrate compliance with the national ambient air quality standards for PM_{10} by 2006.

Furthermore, most of the fugitive dust work practice standards listed in Rule 316 are not new; they are options in Rule 310. However, Rule 316 does restrict the number of options, in some instances does require combinations of options, and for trackout does reduce the length of trackout to no more the 25 feet. The costs of these work practices were analyzed during the development of Rule 310. The economic analysis does include some updated costs. Item #9-Summary Of The Economic, Small Business, And Consumer Impact in the Notice Of Proposed Rulemaking for Rule 316 did include cost estimates for available controls for an affected facility. Other paragraphs in Item #9 also provided the emissions inventory for affected sources and the estimated percent reduction in emissions associated with the available controls.

Maricopa County has expanded the economic analysis in this Notice Of Final Rulemaking to include a range of cost effectiveness values and nonmetallic mineral processing industry-specific detail in the emissions inventory discussion. Rule effectiveness is an indicator of how consistently sources maintain compliance with a rule. Rule effectiveness accounts for breakdowns, human errors, and operational oversights. While Maricopa County does not require industry to account for rule effectiveness when completing emissions inventories, Maricopa County and the Arizona Department Of Environmental Quality (ADEQ) must account for it when modeling for attainment and estimating the impact of rules. The Environmental Protection Agency (EPA) default rule effectiveness is 80% and is the goal to which Maricopa County is striving in order to attain the PM_{10} standard. Reaching 80% is a challenge in a program that relies heavily on work practice requirements to comply with standards. Maricopa County and ADEQ estimate rule effectiveness ranges from 60% - 99% depending on the process and the control. The South Coast Air Quality Management District assumes 20%.

Maricopa County estimates that, with the implementation of the new requirements in Rule 316, PM_{10} emission reductions will total 27.2% - 5.3% reduction from asphalt batch plants, 2.6% reduction from concrete batch plants, 0.7% reduction from other-concrete batch plants, 4.6% reduction from open storage piles, and 40.7% reduction from unpaved haul roads. Maricopa County predicts that PM_{10} emission reductions would be higher, especially for unpaved haul roads, but trackout emissions are calculated within the on-road mobile equation of the emissions inventory and are not captured in point source emission estimates. Regardless, the Arizona Department Of Environmental Quality (ADEQ) expects that a reduction in PM_{10} emissions potentially will create commensurate cost-saving benefits to the general public by contributing towards reducing emissions-related health problems.

Maricopa County estimates that total annualized cost and cost effectiveness to implement Rule 316 controls as follows:

Facility	**Emissions Reduced** (Tons Per Year - TPY)	**Total Annualized To Implement Rule 316**	**Cost Effectiveness**
Large-Sized Facility	17.11	$101,314 - $116,067	$4,802 - $5,501
Medium-Sized Facility #1	11.7	$92,755 - $107,508	$6,417 - $7,437
Medium-Sized Facility #2	7.71	$86,717 - $101,469	$9,126 - $10,678
Small-Sized Facility	0.61	$22,653 - $44,976	$30,087 - $59,750

Maricopa County expects additional emission reductions from Rule 316 trackout controls; however, these reductions have not been quantified and are not included in the 176.3 tons per year.

Comment #23:

The purported justification for many of the proposed requirements in the Notice Of Proposed Rulemaking is South Coast's final proposed Rule 1157 dated December 3, 2004. The California Mining Association (CMA) filed suit over South Coast's adoption of this rule on February 9, 2005. Pursuant to A.R.S. §49-112, most stringent measures (MSM) and best available control measures (BACM) requirements, and the Arizona Administrative Procedures Act, Maricopa County cannot cite a challenged law as the justification for new Maricopa County requirements. In fact, many of the reasons South Coast's rule has been challenged are reasons cited by the Arizona Rock Products Association (ARPA) as problems with the Notice Of Proposed Rulemaking. Fundamentally, both South Coast's challenged rule and the Notice Of Proposed Rulemaking contain requirements that are not technically or economically feasible. Because adoptions of provisions drawn from South Coast's Rule 1157 would violate numerous statutory and regulatory provisions, Maricopa County cannot include those measures in final Rule 316.

Response #23:

Until the California Superior Court resolves the challenge made to South Coast's Rule 1157-PM_{10} Emission Reductions From Aggregate And Related Operations as adopted January 7, 2005, the standards and fugitive dust control measures in Rule 1157 are still lawful and Maricopa County can cite Rule 1157 as the justification for new Rule 316 requirements. If the California Superior Court deems any and/or all of the standards and/or fugitive dust control measures in Rule 1157 as un-lawful, then Maricopa County will conduct another rulemaking process to revise Rule 316 accordingly.

Furthermore, most of the fugitive dust work practice standards listed in Rule 316 are not new; they are options in Rule 310 today. However, Rule 316 does restrict the number of options, in some instances does require combinations of practices that were formerly only options, and for trackout does reduce the length of trackout to no more the 25 feet. The costs of these work practices were analyzed during the development of Rule 310. The economic analysis does include some updated costs.

Comment #24:

The Arizona Rock Products Association (ARPA) has serious reservations about proposed Rule 316 that as currently crafted would regulate every phase of the industry. Proposed Rule 316 has metamorphosed from a rule imposing emissions limitations to a rule that would prescribe control measures that must be implemented without taking into consideration the countless conditions that come into play.

Nowhere in proposed Rule 316 is there language that allows the owner to develop and implement equivalent or possibly more superior control measures for their individual location. Site owners should be encouraged and provided incentives to develop innovative ways in which to reduce particulate emissions versus adhering to prescriptive measures that in some locations can not be achieved.

Many of the measures in proposed Rule 316 are arbitrary and far too prescriptive. This panacea approach will be problematic for the rock products industry from a technical and economic standpoint. Some of the proposed measures in Rule 316 are onerous and do not take into account the complexities of the rock products industry that would limit flexibility within individual operations and make compliance difficult to achieve. Further, the mandated control measures proposed in Rule 316 have been taken from around the country and do not take into account the differences in the industry on a regional basis. Some proposed measures are simply infeasible regardless of location.

As currently proposed, Rule 316 not only imposes certain measures without consideration of local factors and economic and technical feasibility, but also stifles future control measure innovations, because it provides no opportunity for the regulated community to develop new control technologies. ARPA would like to see language added to proposed Rule 316 that would allow operations some autonomy regarding how they will achieve the necessary emission controls that would be mandated by proposed Rule 316. Such rule language would provide benefits to all, because it would foster control technology innovation by allowing regulated companies to develop and implement improved control measures that address the specific and unique conditions they face.

Including a provision in proposed Rule 316 that includes allowance for alternative measures that achieve equivalent or better emissions control would provide operations with the opportunity to demonstrate why a control measure is not possible, applicable, or effective in a specific situation and make a showing of an equivalent or better alternative the would meet the requirements of proposed Rule 316. The industry would not be asking for a different standard but rather the ability to employ equivalent measures to meet the same requirements.

At the Public Workshop conducted on January 7, 2005, Maricopa County orally committed to including a contingency into the proposal that would address this reasonable request. However, there was no subsequent inclusion of this provision in the Notice Of Proposed Rulemaking. Proposed Rule 316 does contain specific citations where authority to accept alternative approaches is granted to the residing Control Officer or Administrator of the Environmental Protection Agency (EPA). Recently revised Arizona Administrative Code (AAC) R18-2-702 and Rule 310 provide similar flexibility. ARPA would like this option specifically identified as being applicable throughout the rule rather than just in the specified citations.

It stands to reason that the EPA, State, and Maricopa County would encourage innovative control measures that go beyond the industry standard. ARPA is requesting that these decisions be made a on a case-by-case basis and is left to the discretion of the Control Officer and be included in the Dust Control Plans. Accordingly, ARPA recommends that Maricopa County add the following text to proposed Rule 316: “Alternative Control Measures And Test Methods: A source may petition the Control Officer for the use of alternative control measures or testing methods

with respect to any provision of this rule. The petition shall include: a. The proposed alternative control measure or test method. b. The control measure or test method that the alternative would replace. c. A detailed statement or report demonstrating the following: 1. For alternative control measures, a demonstration that the measure would result in equivalent or better emission control than the measures prescribed in the rule. 2. For alternative test methods, a demonstration that the method would result in equivalent or better quantification of applicable parameters than the method prescribed in the rule. Nothing in this rule shall be construed to prevent a source from making such demonstration. The Control Officer shall act on a petition submitted pursuant to this section within 90 days. Following a decision by the Control Officer to grant the petition, the source must incorporate the alternative control measure in any required Dust Control Plan. A decision by the Control Officer to deny the petition is subject to review pursuant to Arizona Revised Statutes (ARS) §49-471.15".

Response #24:

As written in the Notice Of Final Rulemaking for Rule 316, Maricopa County is adding, in the final/adopted version of Rule 316, text that allows the owner and/or operator of a facility subject to Rule 316 to develop and implement alternative dust control measures – alternative to those required by Rule 316.

Comment #25:

The Arizona Rock Products Association (ARPA) requests that no visible emissions be deleted from Rule 316, Section 303.2(d)(4) and Section 303.2(d)(5)–Concrete Plants And/Or Bagging Operations-Process Emission Limitations And Controls (The owner and/or operator of a concrete plant and/or bagging operation shall implement the following process sources…On dry mix concrete plant loading stations/truck mixed product, implement one of the following process controls…Enclose mixer loading stations such that no visible emissions occur; or…Conduct mixer loading stations in an enclosed process building such that no visible emissions from the building occur during the mixing activities).

As written, this suggests that this area of the facility has a different opacity standard from the rest of the operation. "No emissions" implies that an enforcement action will take place if any visible emissions occur. ARPA understands that there is a 20% opacity standard on all fugitive emissions. Further, Maricopa County has not shown that a 'no visible emissions' requirement is technically feasible.

Response #25:

Enclosures, both full and partial, exhibit a high level of capture and control. An emissions source can be completely enclosed by relocating the source from outside to inside a building or by constructing an enclosure around it, thereby preventing emissions to the atmosphere. Emissions sources that can be controlled by this method include plant feeding, handling, crushing, and screening operations; concrete batch plant mixer loading and concrete batch truck loading;

sand/aggregate transfer to conveyors and other areas; transit mix trucks loading; and materials transfer points. Filter systems, mixer loading, and batch truck loading emissions control devices must meet a performance standard of no visible emissions exceeding 30 seconds in any six-minute period as determined using the Environmental Protection Agency (EPA) Test Method 22.

Comment #26:

All proposed control measures must be technically and economically feasible. The Arizona Rock Products Association (ARPA) still maintains that ceasing operations during a high wind event, as written in Rule 316, Section 306.3(c)(1)(a)–Fugitive Dust Emission Limitations-Wind Event, is not an economically viable option for facilities and should not be in the rule, especially if the necessary stabilization requirements are met.

Ceasing operations is a challenge for the aggregate industry and, while only an option (one of two), the exemption only applies if aggregate operators can prove that the project where their material is used by a ready-mix or asphalt batch plant would be irreparably harmed by ceasing during high winds. This proof is only known to the batch plant not to the aggregate operator. This information would be difficult to determine in all cases. In addition, Arizona Department Of Transportation contracts and those of municipalities impose steep penalties, if materials are not timely provided. Also, building code requirements, as outlined in the California Mining Association's (CMA's) lawsuit, are another example of the economic infeasibility of this provision.

The harm is obvious: numerous Arizona construction and safety laws recognize that cold joints create structural integrity and safety problems. The Notice Of Proposed Rulemaking fails to consider the costs associated with ceasing operations and fails to demonstrate how ceasing operations would be economically feasible. ARPA requests that the language and exemption be stated clearly to avoid confusion or unnecessary product liability issues or unworkable conditions.

Response #26:

With the revisions to Rule 316, Rule 316 will require compliance with emission limitations and the implementation of process controls and fugitive dust control measures by any commercial and/or industrial nonmetallic mineral processing plant and/or rock product processing plant. Ceasing operations during a high wind event is one fugitive dust control measure that could be chosen to control dust emissions during a high wind event. A facility may choose to cease operations during a high wind event or may choose another option due to site-specific and/or material-specific conditions and logistics of a facility. Also, a facility may submit a request to the Control Officer and the Administrator Of The Environmental Protection Agency (EPA) to use an alternative control measure(s).

While Rule 316 includes ceasing operations as an option for controlling fugitive dust during a high wind event, the South Coast Air Quality Management District Rule 1157-PM_{10} Emission Reductions From Aggregate And Related Operations adopted January 7, 2005 does not

provide/include such option. The South Coast Air Quality Management District Rule 1157-PM_{10} Emission Reductions From Aggregate And Related Operations adopted January 7, 2005 provides that, "…if qualified, operators can continue to produce and deliver their product on high wind days and will not be required to meet opacity and visible dust plume requirements of Rule 1157. This limited provision affects ready-mix and hot mix asphalt operations and the loading and transport of aggregate materials to supply these facilities when a continuous pour or a construction project has commenced during a period of high winds. No other type of aggregate operations will be able to continue to operate and still be exempt from these performance standards during high winds. Operators should be aware that they can continue all operations as long as they meet the performance standards".

Per the South Coast Air Quality Management District Rule 1157-PM_{10} Emission Reductions From Aggregate And Related Operations adopted January 7, 2005, during high winds, the operator of a facility/operation will be exempt from not being allowed (or will be allowed) to cause or allow a discharge into the atmosphere of fugitive dust emissions exceeding 20% opacity from any activity, equipment, storage pile, or disturbed surface area, based on an average 12 consecutive readings using the SCAQMD Opacity Test Method No. 9B or will be exempt from not being allowed (or will be allowed) to discharge into the atmosphere fugitive dust emissions exceeding 50% opacity from any activity, equipment, storage pile, or disturbed surface area, based on five individual, consecutive readings, using the SCAQMD Opacity Test Method No. 9B, effective December 3, 2005 or will be exempt from not being allowed (or will be allowed) any visible fugitive dust plume from exceeding 100 feet in any direction from any activity, equipment, storage pile, or disturbed surface area, if all activities and/or equipment are ceased, except for dust controls.

Also per the South Coast Air Quality Management District Rule 1157-PM_{10} Emission Reductions From Aggregate And Related Operations adopted January 7, 2005, the activities and/or equipment at the ready-mix concrete and hot mix asphalt facilities that produce materials for use in a construction project that is being paved or poured during high winds are not required to cease operations during high winds, provided the operator of the operation or activity demonstrates, at the Executive Officer's request, that irreparable damage to the construction project would occur if such operations are ceased during high winds.

Also per the South Coast Air Quality Management District Rule 1157-PM_{10} Emission Reductions From Aggregate And Related Operations adopted January 7, 2005, the loading and transport of aggregate materials directly to ready-mix concrete and hot mix asphalt facilities that produce materials for use in a construction project that is being paved or poured during high winds are not required to cease operations during high winds, provided the operator of the operation or activity demonstrates, at the Executive Officer's request, that irreparable damage to the construction project would occur if such operations are ceased during high winds.

Comment #27:

Stockpiles are active and routinely change shape or position. Being so, stockpiles cannot be covered, as required in Rule 316, Section 306.3(c)(2)(b)-Fugitive Dust Emission Limitations-Wind Event (The fugitive dust emission limitations described in Section 306.1 (20% opacity limitation) and Section 306.2 (visible emission limitation beyond the property line) of this rule shall not apply during a wind event, if the owner and/or operator of a facility…has…for an open storage pile…cover[ed] open storage pile with tarps, plastic, or other material such that wind will not remove the covering).

Covering stockpiles would create inherent safety and logistical issues. The Arizona Rock Products Association (ARPA) members will not ask their employees to scale large stockpiles and attempt to place tarps over them at any time – let alone during a major wind event. The rock products industry does not consider this measure a viable option for our operations under any circumstances – not to mention the ramifications with the Mine Safety And Health Administration.

ARPA has worked-with Maricopa to develop equivalent alternatives and would like to see this measure stricken from proposed Rule 316. Alternatively, ARPA requests to see a qualifier placed in this language that this option was intended for small piles, as stated by Maricopa County Staff in the Public Workshops, rather than large working stockpiles that are representative of our industry. ARPA recommends that Rule 316 specifically identify small piles as those stockpiles that are less than eight feet tall and less than 500 cubic yards.

If this issue pertains to contaminated materials, as has been mentioned during Public Workshops, it is a solid waste issue and does not pertain to PM_{10} emissions. There are applicable Arizona Department Of Environmental Quality (ADEQ) regulations that address solid waste. Maricopa County does not have the statutory authorization to regulate solid waste through Rule 316.

Response #27:

As written in the Notice Of Final Rulemaking for Rule 316, Maricopa County is adding, in the final/adopted version of Rule 316, the text "if open storage pile is less than eight feet high". As originally proposed Rule 316 required open storage piles – regardless of size – to be covered, as a fugitive dust control measure. However, since covering open storage piles can be a safety hazard and can be difficult due to the non-static/changeable nature of open storage piles, Rule 316 will require covering open storage piles, only if open storage piles are less than eight feet high. If open storage piles are more than eight feet high, then Rule 316 will allow other options for fugitive dust control.

Comment #28:

The Arizona Rock Products Association (ARPA) would like to remind Maricopa County again that using dust suppressants near stockpiles, as required in Rule 316, Section 307.1(a)–Fugitive Dust Control Measures-Open Storage Piles And Material Handling (…prior to, and/or while conducting stacking, loading, and unloading operations…spray material with water, as necessary; or spray material with a dust suppressant other than water, as necessary), is not technically

feasible when trying to maintain certain material specifications. Water is a more acceptable option, but if water is not available, another option should be considered. ARPA would like the list to include "or other stabilization control as approved in the Dust Control Plan".

Response #28:

With the revisions to Rule 316, Rule 316 will require compliance with emission limitations and the implementation of process controls and fugitive dust control measures by any commercial and/or industrial nonmetallic mineral processing plant and/or rock product processing plant. Spraying material with a dust suppressant other than water, as necessary, while conducting stacking, loading, and unloading operations is one fugitive dust control measure that could be chosen to control dust emissions from open storage piles and material handling. A facility may choose to spray material with a dust suppressant or may choose another option due to site-specific and/or material-specific conditions and logistics of a facility. Also, a facility may submit a request to the Control Officer and the Administrator Of The Environmental Protection Agency (EPA) to use an alternative control measure(s).

Comment #29:

As written in Rule 316, Section 307.1(d)(1)–Fugitive Dust Control Measures-Open Storage Piles And Material Handling (For existing open storage pile(s) and when installing open storage pile(s) for an existing facility or for a new facility, if such open storage pile(s) will be constructed over eight feet high and will not be covered, then the owner and/or operator shall install, use, and maintain…a road that is bladed to the top of such open storage pile(s) to allow water truck access. If such open storage pile(s) are composed of aggregate base course (ABC), then this fugitive dust control measure is not applicable), blading to the top of an open storage pile is not an option for ABC piles. However, blading may not be an option for other storage piles as well. The Arizona Rock Products Association (ARPA) would like language in Rule 316 to reflect that blading is not applicable for all open storage piles.

Another option listed is to have a sprinkler system that is capable of coverage - Rule 316, Section 307.1(d)(2)-Fugitive Dust Control Measures-Open Storage Piles And Material Handling (For existing open storage pile(s) and when installing open storage pile(s) for an existing facility or for a new facility, if such open storage pile(s) will be constructed over eight feet high and will not be covered, then the owner and/or operator shall install, use, and maintain…a sprinkler irrigation system that is capable of complete open storage pile(s) coverage). This measure is not technically feasible or necessary as the locations and sizes of active stockpiles are not static.

Response #29:

As written in the Notice Of Final Rulemaking for Rule 316, Maricopa County is deleting, in the final/adopted version of Rule 316, Section 307.1(d)(1) and Section 307.1(d)(2) and moving Section 307.1(d)(3) to the introduction of Section 307.1(d). Blading to the top of open storage piles or installing a sprinkler irrigation system on open storage piles were included in Rule 316 as options for

fugitive dust control. However, since blading to the top of open storage piles can be a safety hazard and since installing a sprinkler irrigation system on open storage piles is difficult due to the non-static/changeable nature of open storage piles, such options have been deleted from Rule 316.

Comment #30:

The Arizona Rock Products Association (ARPA) would like to see Rule 316, Section 307.3(a)(7)–Fugitive Dust Control Measures-Haul/Access Roads (The owner and/or operator of a facility shall…before engaging in the use of, or in the maintenance of, haul/access roads…limit vehicle speeds) stand alone or see the pairing of speed limits with the addition of water as necessary to comply with Rule 316, Section 306.1.

Response #30:

As written in the Notice Of Final Rulemaking for Rule 316, Maricopa County is deleting, in the final/adopted version of Rule 316, Section 307.3(a)(7) and adding such text to Section 307.3(a)(2), which will entail combining the fugitive dust control measures for haul/access roads – limiting vehicle speeds and applying water, as necessary.

Comment #31:

Rule 316, Section 307.4(d)(2)–Fugitive Dust Control Measures-On-Site Traffic (The owner and/or operator of a facility, when hauling and/or transporting bulk material on-site within the property line of a facility, shall…cover haul trucks with a tarp or other suitable closure) was added in the fifth draft and did not allow for sufficient discussion or time to prepare technical comment. The measures described in Section 307.4(d)(2) are too restrictive and as long as aggregate operations meet the opacity standard of Section 306.1 (Fugitive Dust Emission Limitations-20% Opacity Limitation), there should be a reasonable degree of flexibility on how operators choose to maintain compliance.

In addition, Section 306.1 does not require a 1.5% soil moisture content. Aggregate haul trucks are too massive to tarp and having a portable water source is problematic. This stipulation is from Rule 310 and is specifically aimed-at the construction industry. The "on-site" addition is not administratively or technically feasible for aggregate operations. The Arizona Rock Products Association (ARPA) requests that Section 307.4(d) be stricken.

Response #31:

As written in the Notice Of Final Rulemaking for Rule 316, Maricopa County is deleting, in the final/adopted version of Rule 316, Section 307.4(d). Although deleting Section 307.4(d) deletes the specific fugitive dust control measures for hauling and/or transporting bulk material on-site from Rule 316, such fugitive dust control measures will still be required under Rule 316, Section 304, which states "All other affected operations or process sources not specifically listed in Sections 301, 302, or 303 of this rule associated with the processing of nonmetallic minerals, all other fugitive dust emission limitations not specifically listed in Section 306 of this rule, all other fugitive dust control measures not specifically listed in Section 307 of this rule, and all overburden operations shall, at a minimum, meet the provisions of Rule 310 of these rules".

Comment #32:

The Arizona Rock Products Association (ARPA) would like to see an enforcement initiative from Maricopa County to address the issue of independents and contracted trucks that are out-of compliance off-site, in regards to the requirement written in Rule 316, Section 307.5(b) and Section 307.5(c)-Fugitive Dust Control Measures-Off-Site Traffic (When hauling and/or transporting bulk material off-site, the owner and/or operator of a facility shall…prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s) and cover haul trucks with a tarp or other suitable closure).

In addition, ARPA maintains that the operations cannot be held liable/responsible for the actions of independents off-site. This provision is analogous to a law making operations for the off-site speeding tickets of independent drivers or a law making a grocery store liable when a customer throws a grocery bag along the roadway. Because the operations have no control of independent and contracted trucks once they leave the property, this provision is not only technically infeasible, but it also violates operations' due process rights and is unlawful.

Based on the December 2004 meeting, ARPA was expecting to receive a formal statement from Larry Spivack on this issue. To date, ARPA has not yet received this communication. At a minimum, "of a facility" should be deleted from Section 307.6(d) and replaced with "of the haul truck".

Response #32:

The terms owner and operator are standard rule language and serve to identify and assign responsibility to ensure compliance with the provisions of a rule to the individuals who own and/or operate equipment that generates emissions. If an individual other than the owner and/or operator is involved in a dust generating activity, then the applicable rules and requirements will be applied to the activity. If an individual other than the owner and/or operator is responsible for a dust generating activity and is conducting such activity out-of compliance with Rule 316, then Maricopa County will consider the following factors when determining who is responsible for such emissions. These factors include, but are not limited to, whether the owner and/or operator has provided that individual with a copy of the air pollution control permit and the Dust Control Plan, there is no evidence to indicate that the owner and/or operator had any control over that individual, and that there is no evidence to indicate that any portion of the dust generating activity occurred while under the control of the owner and/or operator.

Comment #33:

As written in Rule 316, Section 307.6(a)-Fugitive Dust Control Measures-Trackout-Rumble Grate And Wheel Washer, a rumble grate and wheel washer must be installed, maintained, and used for new permanent facilities and/or for existing permanent facilities with a minimum of 60 aggregate trucks, mixer trucks, and/or batch trucks exiting a facility on any day onto paved public roadways/paved areas accessible to the public.

The Arizona Rock Products Association (ARPA) has not seen any evidence that a wheel washer is effective in preventing trackout. Some sites, such as ready-mix and asphalt plants, do not even have the room to put-in wheel washers, making this option technically infeasible. ARPA maintains that wheel washers do not reduce emissions proportionate to the costs involved in employing them. ARPA, therefore, requests to see Maricopa County's technical and economic analysis that supports the reasoning behind this option.

In addition, introducing water to dirt only further exacerbates the trackout problem. During the January 7, 2005 conference call with the Environmental Protection Agency (EPA), a member of the EPA explained that a wheel washer was necessary because rumble grates become loaded with material as a result of heavy traffic and therefore are ineffective. Maricopa County agreed with ARPA that a rumble grate would be sufficient, if freeboard is maintained rather than add an additional control measure as a back-up.

It was ARPA's understanding from the Public Workshop that an option to maintain the rumble grates would be addressed in the Dust Control Plan and/or Operations And Maintenance Plan language, but no subsequent change was made. ARPA would like Maricopa County to include an option in Rule 316 that specifically allows facilities to use rumble grates on the condition that 3" of freeboard is maintained on all rumble grates.

ARPA contends that industry should choose what technology and in what combination is acceptable to address trackout control.

Response #33:

As written in the Notice Of Final Rulemaking for Rule 316, Maricopa County is adding, in the final/adopted version of Rule 316, the term "conditions" and adding the following sentence to the end of Section 307.6(a): "For the purpose of this rule, a vehicle wash and/or a cosmetic wash may be substituted for a wheel washer, provided such vehicle wash and/or cosmetic wash has at least 40 pounds per square inch (psi) water spray from the nozzle (owner and/or operator of the facility shall have a water pressure gauge available on-site to allow verification of such water pressure), meets the definition of wheel washer (i.e., is capable of washing the entire circumference of each wheel of the vehicle), is operated in such a way that visible deposits are removed from the entire circumference of each wheel of the vehicle exiting the wash, is installed, maintained, and used in accordance with criteria in Section 307.6(a)(1)-(5) of this rule, and is approved in the Dust Control Plan for the facility".

A recent trackout study conducted by the Arizona Department Of Environmental Quality (ADEQ) in September 2003 again found the heaviest silt loading values for roadways occurred in industrial areas. As a result, the work practice options for industry are being restricted to provide additional assurance that sources are operating in continuous compliance with the standards in Rule 316.

Comment #34:

In Rule 316, Section 307.6(b)(4)-Fugitive Dust Control Measures-Trackout-Rumble Grate, Wheel Washer, Or Truck Washer (The owner and/or operator of a facility…shall install, maintain, and use a rumble grate, wheel washer, or truck washer in accordance with all of the following…if haul/access roads/internal roads are unpaved between the rumble grate, wheel washer, or truck washer and the facility exits leading to paved public roadways/paved areas accessible to the public, a gravel pad shall be installed, maintained, and used from the rumble grate, wheel washer, or truck washer to such paved public roadways/paved areas accessible to the public), Maricopa County should delete the term 'all'.

Response #34:

As written in the Notice Of Final Rulemaking for Rule 316, Maricopa County is deleting, in the final/adopted version of Rule 316, the geotextile lining requirement from Section 307.6(b)(4)(b). Also, Maricopa County is deleting Section 307.6(b)(4)(c) and adding such text to Section 307.6(b)(4)(a) and Section 307.6(b)(4)(b). Consequently, a gravel pad will have to be designed with a layer of washed gravel, rock, or crushed rock that is at least one inch or larger in diameter and 6 inches deep, 30 feet wide, and 50 feet long, will have to be flushed with water or completely replaced as necessary, and will have to have a gravel pad stabilizing mechanism/device (i.e., curbs or structural devices along the perimeter of the gravel pad).

Comment #35:

The measure in Rule 316, Section 307.6(b)(4)(b)-Fugitive Dust Control Measures-Trackout-Rumble Grate, Wheel Washer, Or Truck Washer (The owner and/or operator of a facility…shall install, maintain, and use a rumble grate, wheel washer, or truck washer in accordance with all of the following…if haul/access roads/internal roads are unpaved between the rumble grate, wheel washer, or truck washer and the facility exits leading to paved public roadways/paved areas accessible to the public, a gravel pad shall be installed, maintained, and used from the rumble grate, wheel washer, or truck washer to such paved public roadways/paved areas accessible to the public in accordance with all of the following:…gravel pad shall have a geotextile lining underneath the washed gravel, rock, or crushed rock or shall have an equivalent gravel pad stabilizing mechanism/device (i.e., curbs or structural devices along the perimeter of the gravel pad)) is technically and economically infeasible.

Geotextile lining is not necessary or effective for this application. As long as the gravel pad is maintained to a 6" depth, the gravel pad should meet the requirements.

Response #35:

As written in the Notice Of Final Rulemaking for Rule 316, Maricopa County is deleting, in the final/adopted version of Rule 316, the geotextile lining requirement from Section 307.6(b)(4)(b). Also, Maricopa County is deleting Section 307.6(b)(4)(c) and adding such text to Section 307.6(b)(4)(a) and Section 307.6(b)(4)(b). Consequently, a gravel pad will have to be designed with a layer of washed gravel, rock, or crushed rock that is at least one inch or larger in diameter and 6 inches deep, 30 feet wide, and 50 feet long, will have to be flushed with water or completely

replaced as necessary, and will have to have a gravel pad stabilizing mechanism/device (i.e., curbs or structural devices along the perimeter of the gravel pad).

Comment #36:

Rule 316, Section 307.6(c)-Fugitive Dust Control Measures-Trackout-Exemptions For Wheel Washers states that if an operator chooses to use a rumble grate that the road from the rumble grate to the roadway must be paved or covered with a cohesive hard surface that is capable of being swept. The definition of cohesive hard surface includes a dust suppressant. If an operator chooses to apply a dust suppressant as a cohesive hard surface, would the operator still be expected to sweep? Obviously not, but does this nuance need clarification?

Response #36:

In Rule 316, Section 307.6(c)-Fugitive Dust Control Measures-Trackout-Exemptions For Wheel Washers, options to surface the road from the rumble grate to the roadway do not include covering with a cohesive hard surface that is capable of being swept. The only options included in Rule 316, Section 307.6(c) are pavement and a gravel pad depending on the exemption. Covering with a cohesive hard surface is only an option for interior plant roads on the plant-side of the rumble grate.

Comment #37:

In Rule 316, Section 307.6(d)-Fugitive Dust Control Measures-Trackout-Trackout Distance (…an owner and/or operator of a facility shall not allow trackout to extend a cumulative distance of 25 linear feet or more from all facility exits onto paved areas accessible to the public. Notwithstanding the proceeding, the owner and/or operator of a facility shall clean up all other trackout at the end of the workday), the Arizona Rock Products Association (ARPA) is concerned about 25 feet for cumulative trackout. While ARPA understands this requirement comes from South Coast Rule 403, ARPA would like to know where this arbitrary number came from and would like to see the required technical and economic analysis conducted specifically for Rule 316.

ARPA is not aware of any data that supports this position and the citations in the Notice Of Proposed Rulemaking do not provide any clarification on this issue. ARPA feels its members are being set-up to fail. ARPA requests Maricopa County to recognize that shadow tracking or film on the roads should not be confused with excessive silt loading caused by spillage or the accumulation of mud on tires. ARPA should not be penalized for aesthetics.

Response #37:

Rule 316 is tied-to a measurable basis for determining severity and used the distance trackout extends as that measure. Past State Implementation Plans (SIPs) indicate that 35%-40% of PM_{10} comes from re-entrained road dust. A recent trackout study conducted by the Arizona Department Of Environmental Quality (ADEQ) in September 2003 again found the heaviest silt loading values for roadways occurred in industrial areas. As a result, the work practice options for industry are being

restricted to provide additional assurance that sources are operating in continuous compliance with the standards in Rule 316.

The South Coast Air Quality Management District Rule 1157-PM_{10} Emission Reductions From Aggregate And Related Operations adopted January 7, 2005 was identified as a rule that included control measures that are best available control measures (BACM)-most stringent control measures (MSM). Rule 1157 sets the cumulative length of trackout, carryout, spillage, or erosion that would require clean-up at 25 feet (25 feet is a single lane of traffic). To ensure that Arizona's measures meet the required BACM-MSM level of stringency, Rule 316 is being revised to prohibit trackout from extending a cumulative distance of 25 linear feet or more from all facility exits onto paved areas accessible to the public.

Comment #38:

Maricopa Count has not provided technical or economic support for the requirement in Rule 316, Section 307.6(e)-Fugitive Dust Control Measures-Trackout-Cleaning Paved Internal Roads (The owner and/or operator of a facility shall clean all paved internal roads in accordance with all of the following as applicable: (1) The owner and/or operator of a facility with a minimum of 60 aggregate trucks, mixer trucks, and/or batch trucks exiting the facility on any day shall sweep the paved internal roads with a street sweeper by the end of each production work shift. (2) The owner and/or operator of a facility with less than 60 aggregate trucks, mixer trucks, and/or batch trucks exiting the facility on any day shall sweep the paved internal roads with a street sweeper by the end of every other work day. On the days that paved internal roads are not swept, the owner and/or operator of a facility shall apply water as necessary to comply with Section 306 of this rule on at least 100 feet of paved internal roads or the entire length of paved internal roads leading to an exit to paved public roadways/paved areas accessible to the public, if such roadways are less than 100 feet long. (3) The owner and/or operator of a facility, who purchases street sweepers after (date of adoption of this rule), shall purchase street sweepers that meet the criteria of PM_{10} efficient South Coast Air Quality Management Rule 1186-certified sweepers. (4) The owner and/or operator of a new facility shall use South Coast Air Quality Management Rule 1186-certified sweepers to sweep paved internal roads).

Arizona Rock Products Association (ARPA) would like Maricopa County to take into consideration ARPA's concerns regarding sweeper availability, efficiency, safety, and frequency challenges – not to mention the onerous economic ramifications. While ARPA recognizes the importance of reasonable response time for sweeping, there are numerous variables that could influence ARPA's ability to do so.

ARPA does not want to see a company receive a Notice Of Violation (NOV), when all reasonable actions have been taken to address a problem. Enforcement of silt loading on paved internal roads and areas accessible to the public should be based on the severity of the problem and the frequency by which a road is swept. South Coast's Air Quality District's Final Staff Report does not

recognize the frequency of existing sweeping, nor does it evaluate control efficiency as a function of frequency.

ARPA would also like to include flushing paved surfaces with water as an option, instead of sweeping internal haul roads. Flushing paved surfaces with water provides adequate control equivalency and, at the very least, would allow ARPA members/the rock products industry to remain in compliance, in the event a sweeper is not available. In the West Coast Environmental (WCE) Emissions Inventory Analysis, it states that "…many facilities use water on paved areas to wash away fines. The South Coast Air Quality Management District asserts that this method will result in only 60% control and that sweeping results in 75% control. There is no cost effectiveness evaluation showing that 15% more control is cost effective".

ARPA also questions the availability of South Coast Rule 1186-Certified Sweepers. As currently written, if such certified sweepers are not available, then a new operation would be unable to operate. The Notice Of Proposed Rulemaking fails to identify current suppliers of certified sweepers or costs associated with the equipment. Accordingly, the Notice Of Proposed Rulemaking fails to provide the required technical or economic showing required for this condition.

Response #38:

As written in the Notice Of Final Rulemaking for Rule 316, Maricopa County is adding, in the final/adopted version of Rule 316, a provision that street sweeping at the end of each production work shift (an 8-hour operating period based on the 24-hour operating schedule) only has to be done when there is evidence of bulk material extending a cumulative distance of 12 linear feet or more on any paved internal road. The requirements to clean paved internal roads are described in Rule 316, Section 307.6(e) and are summarized in the table at the end of this response – Response #38.

Since the nature of the business of nonmetallic mineral processing plants, asphaltic concrete plants, and concrete plants and/or bagging operations is to move rocks, gravel, and dirt, then nonmetallic mineral processing plants, asphaltic concrete plants, and concrete plants and/or bagging operations must rely on a substantial piece of equipment to clean up spills/deposits of such materials on a paved surface. Currently in Maricopa County, paved internal roads at a nonmetallic mineral processing plant, asphaltic concrete plant, and concrete plant and/or bagging operation can be cleaned by broom machines. Broom machines are efficient for removing heavy gravel, heavy dirt, and heavy mud from paved surfaces, but such machines do not meet the criteria of PM_{10} efficient South Coast Rule 1186-certified sweepers.

On average, nonmetallic mineral processing plants, asphaltic concrete plants, and concrete plants and/or bagging operations hire companies to clean paved internal roads with broom machines 2-3 times per week at a basic retail rate of $85 per hour (with a minimum of 2-hours of service). If needed, such facilities could hire companies to clean paved internal roads once per day at a commercial contract rate of $100 per sweep. If a facility needs to clean paved internal roads

due to a spill or due to sudden excessive trackout, hired companies usually can respond to such "emergency" requests within 2-hours at a basic retail rate of $85 per hour.

With the revisions to Rule 316, Rule 316 requires that if an existing/already operating facility purchases a street sweeper, then such street sweeper must meet the criteria of PM_{10} efficient South Coast Rule 1186-certified sweepers. Likewise, if a new facility begins operating, then such facility must use (whether hired or purchased) a street sweeper that meets the criteria of PM_{10} efficient South Coast Rule 1186-certified sweepers. In order for a street sweeper to meet the criteria of PM_{10} efficient South Coast Rule 1186-certified sweepers, such street sweeper must have a pick-up efficiency greater than or equal to 80% and have a normalized mass of entrained PM_{10} of less than or equal to 200 mg/m.

Typically, street sweepers that meet the criteria of PM_{10} efficient South Coast Rule 1186-certified sweepers sell for $80,000-$120,000 new and $30,000 used. When purchasing a street sweeper, a facility must not only consider the cost of the street sweeper, but a facility must also consider how water will be provided for the street sweeper (e.g., having a meter for water available at the facility and/or acquiring water permits from a municipality), because street sweepers must be replenished with water about four times per day. Also, a facility must consider the disposal costs of the debris that the street sweeper collects, because debris collected by street sweepers is usually disposed-of at waste facilities for a disposal fee.

Makers of street sweepers that meet the criteria of PM_{10} efficient South Coast Rule 1186-certified sweepers include Elgin, Johnston, Schwarze, Sweeprite, Tennant, Tymco, and VAC/ALL. The entire product line of Tymco regenerative air sweeper models meet the criteria of PM_{10} efficient South Coast Rule 1186-certified sweepers, have "assisted" heads, and do not sweep debris into a hopper, as do broom machines. As a general practice, when purchasing new street sweepers, street sweeping companies in Maricopa County purchase street sweepers that meet the criteria of PM_{10} efficient South Coast Rule 1186-certified sweepers.

According to the South Coast Air Quality Management District final staff report and final socioeconomic report for proposed Rule 1157-PM_{10} Emission Reductions From Aggregate And Related Operations dated December 2004, water applied on paved roads is not as effective as sweeping (i.e., 60% vs. 75%). With sweeping, dirt is picked-up by either mechanical or vacuum sweepers, while water only temporarily suppresses dirt.

Conversely, according to Teichert Materials, when a vehicle exits the site when the vehicle tires are wet, the water that the vehicle and its tires track onto a public road contains very fine sediments. When the water that has been tracked onto a public road evaporates, the surface of the public road is left coated with the very fine sediments. Although having very fine sediments on a public road is considered trackout, the amount or degree of trackout could appear/be skewed. Because very fine sediments scatter light easily, the fugitive dust emissions created from traffic

traveling over such very fine sediments is sometimes disproportionate to the actual amount of sediment tracked out onto the public road, especially in the light of sunrise and sunset.

If a facility is ALREADY EXISTING / OPERATING at the time Rule 316 is adopted				**If a facility is NEWLY EXISTING / OPERATING at the time Rule 316 is adopted**		
Amount of facility traffic	**Timing of street sweeping required**	**Types of street sweepers required**		**Amount of facility traffic**	**Timing of street sweeping required**	**Types of street sweepers required**
With a minimum of 60 trucks exiting a facility per day	Sweep paved internal roads with a street sweeper by the end of an 8-hour operating period based on the 24-hour operating schedule (definition of production work shift), if there is evidence of bulk material extending a cumulative distance of 12 linear feet or more on any paved internal road.	Not required to purchase new street sweepers; Okay to use street sweepers that are already being used by the facility	If purchasing street sweepers, street sweepers must meet the criteria of PM_{10} efficient South Coast Rule 1186-Certified Sweepers	With a minimum of 60 trucks exiting a facility per day	Sweep paved internal roads with a street sweeper by the end of an 8-hour operating period based on the 24-hour operating schedule (definition of production work shift), if there is evidence of bulk material extending a cumulative distance of 12 linear feet or more on any paved internal road.	Street sweepers must meet the criteria of PM_{10} efficient South Coast Rule 1186-Certified Sweepers
With less than 60 trucks exiting a facility per day	Sweep paved internal roads with a street sweeper by the end of every other working period that may include one or more work shift but not later than 8 pm (definition of end of work day)	Not required to purchase new street sweepers; Okay to use street sweepers that are already being used by the facility	If purchasing street sweepers, street sweepers must meet the criteria of PM_{10} efficient South Coast Rule 1186-Certified Sweepers	With less than 60 trucks exiting a facility per day	Sweep paved internal roads with a street sweeper by the end of every other working period that may include one or more work shift but not later than 8 pm (definition of end of work day)	Street sweepers must meet the criteria of PM_{10} efficient South Coast Rule 1186-Certified Sweepers

Comment #39:

Spillage occurs at several points around a given plant site and it is not considered a significant source, as implied by the requirement in Rule 316, Section 307.8-Fugitive Dust Control Measures-Spillage (In addition to complying with the fugitive dust emission limitations described in Section 306 of this rule and implementing fugitive dust control measures described in Section 307.1 through Section 307.9 of this rule, as applicable, the owner and/or operator of a facility shall implement one of the following fugitive dust control measures, as applicable, when spillage occurs: a. Promptly remove any pile of spillage on paved haul/access roads/paved internal roads; b. Maintain in a stabilized condition any pile of spillage on paved haul/access roads/paved internal roads and remove such pile by the end of each day; or c. Maintain in a stabilized condition all other piles of spillage with dust suppressants until removal).

The Arizona Rock Products Association (ARPA) feels it is unreasonable to require small dirt piles, which are on dirt to begin with, to be treated with dust suppressants, cleaned up, or stabilized, unless there is an emission problem that needs to be addressed. Accordingly, Rule 316, Section 307.8(c) does not appear to be specific to paved surfaces and should be qualified or removed.

Response #39:

As written in Rule 316, Section 307.8 and as spillage is defined in Rule 316, Section 352, the fugitive dust control measures required for spillage (i.e., any quantity of nonmetallic minerals/materials that spill while being processed or after having been processed by an affected operation, where such spilled nonmetallic minerals/materials can generate or cause fugitive dust emissions) are specific to paved surfaces and are required only when the spillage can generate or cause fugitive dust emissions.

Comment #40:

Regarding the requirement in Rule 316, Section 308-Fugitive Dust Control Technician (The owner and/or operator of a facility with a rated or permitted capacity of 25 tons or more per hour of material shall have in place a Fugitive Dust Control Technician or his designee…) and the requirement in Rule 316, Section 401.4-Compliance Schedule-Fugitive Dust Control Technician (The newly amended provisions of this rule shall become effective upon adoption of this rule and the following schedule applies… When complying with Section 308 of this rule, a Fugitive Dust Control Technician shall be in place by October 31, 2005 or six months after rule adoption, whichever comes first), the Arizona Rock Products Association (ARPA) would like to see the certification take place for the technician no sooner than three years and would like to couple the training with a smoke school.

Because there is no training currently available, ARPA is concerned that the provision is not technically feasible. Reasonable training opportunities are not available in time for the Fugitive Dust Control Technician to be in compliance by October 31, 2005. Rule 316, Section 401.4 should be revised as follows: "A Fugitive Dust Control Technician shall be in place by December 31, 2005 or six months after the Maricopa County Fugitive Dust Control Class has first been initiated, whichever occurs later".

Response #40:

As written in the Notice Of Final Rulemaking for Rule 316, Maricopa County is changing, in the final/adopted version of Rule 316, the compliance schedule in Section 401-Administrative Requirements to reflect the adoption date of Rule 316 – June 8, 2005. With this revision, if a dust control plan is required to be revised, then a revised dust control plan must be submitted to the Control Officer by September 30, 2005 or three months after rule adoption, whichever comes first and a Fugitive Dust Control Technician shall be in place by December 31, 2005 or six months after rule adoption, whichever comes first.

Comment #41:

Regarding Rule 316, Section 101-Purpose draft August 25, 2004 and draft October 28, 2004, rock is a general term that includes minerals. Some minerals may not be the ones defined in Rule 316.

The way Section 101 is worded is unnecessary. Section 101 basically says: "Purpose: To limit…nonmetallic mineral…or any mineral…" Remove rock product processing plant, since it

expands on the first type of plant to areas not included in Rule 316 and and/or put nonmetallic ahead of the word rock.

Particulate matter pollution is a combination of particulates generated by the source plant and fugitive dust. The PM_{10} problem that caused the Phoenix area to be out-of compliance was not due exclusively to fugitive dust. Opacity is not the only measure of particulate pollution. The out-of compliance situation was not due to opacity exceedances; it was related health standards set-up by the Environmental Protection Agency (EPA). The out-of compliance measurements were made by particle monitors. This document doesn't talk about these pollution control methods - only opacity. There should be continuous (accurate) PM_{10} monitors in neighborhoods to protect the people from such excess pollution.

This document has generalized headings and terms but seems to have a limited scope (fugitive dust). The individual air quality permits have requirements for how many tons of particulate emission is allowed. That isn't mentioned either.

Response #41:

Since rock product processing plants are included in the definition of nonmetallic mineral processing plants, the definition of rock product processing plants is not necessary and has been deleted from Rule 316. Also, rock product processing plant is included in Rule 316, Section 101-Purpose, because it is not always clear that a rock product processing plant is also a nonmetallic mineral processing plant and therefore would be subject to Rule 316. By stating specifically that the purpose of Rule 316 applies to a rock product processing plant, it should be clear that a rock product processing plant is subject to Rule 316.

Comment #42:

Regarding Rule 316, Section 102-Applicability draft August 25, 2004 and draft October 28, 2004, rock is a general term that includes minerals. Put nonmetallic ahead of the word rock. It is more like an advertisement for rock products.

Response #42:

Rock product processing plant is included in the Section 101-Purpose, because it is not always clear that a rock product processing plant is also a nonmetallic mineral processing plant and therefore would be subject to Rule 316. By saying specifically that the purpose of Rule 316 applies to a rock product processing plant, it should be clear that a rock product processing plant is subject to Rule 316.

Comment #43:

A number of plants listed in the definition of new facility are left-out of the definition of affected operation. They produce PM also. They are not all involved in excavating. To say excavating is involved in every operation is not true.

Response #43:

By definition, nonmetallic mineral processing includes mining, excavating, separating, combining, crushing, or grinding any nonmetallic mineral. In order to make the definition of new facility and the definition of affected operation correspond with the definition of nonmetallic mineral processing, Maricopa County will change the definition of new facility to read: "A facility subject to this rule that has not been operated prior to xxxx xx, 2005 (30 days after the Maricopa County Board Of Supervisors approves/adopts Rule 316)" and will change the definition of affected operation to read: "An operation that processes nonmetallic minerals or that is related to such processing and process sources including, but not limited to, excavating, crushers, grinding mills, screening equipment, conveying systems, elevators, transfer points, bagging operations, storage bins, enclosed truck and railcar loading stations, and truck dumping".

Comment #44:

Aggregate truck should be defined as trucks with covered tops.

Response #44:

As written in Rule 316, the definition of aggregate truck matches the definition of aggregate truck in the South Coast Air Quality Management District's Rule 1157-PM_{10} Emission Reductions From Aggregate And Related Operations adopted January 7, 2005.

One of the requirements in Rule 316, Section 307.5-Fugitive Dust Control Measures-Off-Site Traffic is that haul trucks be covered when hauling and/or transporting bulk material off-site.

Comment #45:

If 40 CFR 60.000 requires best available control measures (BACM) and most stringent measures (MSM), these requirements should be called-out in the definition of approved emission control system as required; not whatever the Control Officer decides is good engineering practice. Up-to now, besides baghouses, the only equipment used has been hoses with water in them, which these plants forget to turn-on half of the time.

Response #45:

Historically, Rule 316 has contained only emission limitations and not fugitive dust control measures specific to nonmetallic mineral processing plants, asphaltic concrete plants, and concrete plants and/or bagging operations. Sources subject to Rule 316 have been required to implement and/or comply with fugitive dust control measures described in Rule 310 (Fugitive Dust).

The revisions to Rule 316 to be adopted June 8, 2005 incorporate best available control measures (BACM) and most stringent measures (MSM) that are included in the revised PM_{10} State Implementation Plan (SIP) - the Final Revised PM_{10} State Implementation Plan For The Salt River Area dated August 2004. In order to reduce emissions from nonmetallic mineral processing plants, asphaltic concrete plants, concrete plants and/or bagging operations, and/or rock product plants, the revisions to Rule 316 include process controls (i.e., enclosures, watering systems, operational overflow warning systems/devices, and fabric filter baghouses), process emission limitations (i.e., stack emissions limitations), fugitive dust emission limitations (i.e., 20% opacity limit, 0% opacity

limit at the property line, silt loading limit, silt content limit, and stabilization standards), and fugitive dust control measures (i.e, during a wind event, for open storage piles and material handling, haul/access roads, on-site traffic, off-site traffic, trackout, spillage, and night-time operations).

The revisions to Rule 316 include adding Section 306-Fugitive Dust Emission Limitations. Section 306 includes fugitive dust emission limitations for the following: (1) 20% Opacity Limitation, (2) Visible Emission Limitation Beyond Property Line, (3) Wind Event, (4) Silt Loading And Silt Content Standards For Unpaved Internal Roads And Unpaved Parking And Staging Areas, and (5) Stabilization Standards.

The revisions to Rule 316 also include adding Section 307-Fugitive Dust Control Measures. Section 307 includes fugitive dust control measures for the following: (1) Open Storage Piles And Material Handling, (2) Surface Stabilization Where Support Equipment And Vehicles Operate, (3) Haul/Access Roads, (4) On-Site Traffic, (5) Off-Site Traffic, (6) Trackout, (7) Pad Construction For Processing Equipment, (8) Spillage, and (9) Night-Time Operations.

An approved emission control system is a system for reducing particulate emissions. Such systems include, but are not limited to, stacks, fabric filter baghouses, and fugitive dust control measures (e.g., applying water or dust suppressants to unpaved haul roads). Rule 316 requires the owner and/or operator of a nonmetallic mineral processing plant, asphaltic concrete plant, concrete plant and/or bagging operation, and/or rock product plant to submit to the Control Officer for approval an operation and maintenance plan for stacks and fabric filter baghouses that are used in order to comply with Rule 316. An operation and maintenance plan must be submitted and approved for each emission control system and for each emission control system monitoring device.

Also, the owner and/or operator of a facility/plant must comply with all of the identified actions and schedules provided in an operation and maintenance plan.

Also, Rule 316 requires the owner and operator of a nonmetallic mineral processing plant, asphaltic concrete plant, concrete plant and/or bagging operation, and/or rock product plant to submit to the Control Officer for approval a Dust Control Plan for fugitive dust control measures that are used in order to comply with Rule 316.

Comment #46:

Remove guard rails from the definition of berms and guard rails, if you are not going to define them. Also, a guard rail is not a mound or pile of material. The Army Corps Of Engineers does not want berms in a riverbed.

Response #46:

The definition of berms and guard rails in Rule 316 matches the definition of berms and guard rails in 30 Code Of Federal Regulations (CFR) Part 56, Section 56.9000 and Section 56.9300 and is not intended to contradict the objectives of the Army Corps Of Engineers. The term berms and guard rails is used in Rule 316, Section 307.1 to clarify that berms and guard rails are not

considered open storage piles and are not required to comply with the fugitive dust control measures for open storage piles. However, berms and guard rails, if and when installed, must be stabilized so that such berms and guard rails do not cause or allow to be discharged into the ambient air fugitive dust emissions exceeding 20% opacity.

Comment #47:

Regarding the definition of fugitive dust emission, fugitive dust can happen on a conveyor and not be caused by humans directly. Any dust that blows from one place to another is fugitive dust.

Response #47:

As defined in Rule 316, fugitive dust emissions are particulate matter not collected by a capture system that is entrained in the ambient air and is caused from human and/or natural activities.

Particulate matter is the term for particles found in the air, including dust, dirt, soot, smoke, and liquid droplets. Particles can be suspended in the air for long periods of time. Some particles are large or dark enough to be seen as soot or smoke. Other particles are so small that individually they can only be detected with an electron microscope. Some particles are directly emitted into the air. They come from a variety of sources such as cars, trucks, buses, factories, construction sites, tilled fields, unpaved roads, stone crushing, and burning of wood. Other particles may be formed in the air from the chemical change of gases (e.g., from fuel combustion in motor vehicles, at power plants, and in other industrial processes). Such particles are formed indirectly when gases from burning fuels react with sunlight and water vapor.

The purpose of Rule 316 is to limit the emission of particulate matter into the ambient air from any commercial and/or industrial nonmetallic mineral processing plant and/or rock product processing plant. Rule 316 sets limits on the amount (i.e., percent) of particulate matter emissions emitted from stacks, transfer points on a conveying system, crushers, silos, and truck dumping directly into any screening operation, feed hopper, or crusher.

Comment #48:

Vermiculite is included in the definition of nonmetallic mineral. Vermiculite does not occur in Arizona.

Response #48:

The standards in Rule 316 are consistent with the Standards Of Performance For Nonmetallic Mineral Processing Plants (40 Code Of Federal Regulations (CFR) Part 60 Subpart OOO). The Standards Of Performance For Nonmetallic Mineral Processing Plants defines nonmetallic mineral. Such definition includes vermiculite. Consequently, the definition of nonmetallic mineral in Rule 316 matches the definition of nonmetallic mineral in the Standards Of Performance For Nonmetallic Mineral Processing Plants and therefore includes vermiculite.

According to the Bureaus Of Mines, Mineral Yearbook, Metals And Minerals (except fuels), 1954, Volume I (1958), vermiculite occurred/occurs naturally in Maricopa County, Arizona in the Aguila Area-Vulture Mountains, at the Bar FX Ranch (southwest of Wickenburg) and in the Inter-Range Area (between Wickenburg and the Vulture Mountains).

Comment #49:

Steel mills are included in the definition of nonmetallic mineral processing plant, but steel mills are not nonmetallic plants. Another advertisement for rock products.

Response #49:

The standards in Rule 316 are consistent with the Standards Of Performance For Nonmetallic Mineral Processing Plants (40 Code Of Federal Regulations (CFR) Part 60 Subpart OOO). The Standards Of Performance For Nonmetallic Mineral Processing Plants defines nonmetallic mineral processing plant. Such definition includes steel mills. Consequently, since the definition of nonmetallic mineral processing plant in Rule 316 matches the definition of nonmetallic mineral processing plant in the Standards Of Performance For Nonmetallic Mineral Processing Plants, then the definition of nonmetallic mineral processing plant includes steel mills.

Comment #50:

Why are open areas and vacant lots defined in Rule 316? Why are open areas and vacant lots so important, especially if the lot belongs to someone else?

Response #50:

Historically, Rule 316 has contained only emission limitations and not fugitive dust control measures specific to nonmetallic mineral processing plants, asphaltic concrete plants, and concrete plants and/or bagging operations. Sources subject to Rule 316 have been required to implement and/or comply with fugitive dust control measures described in Rule 310 (Fugitive Dust).

The revisions to Rule 316 include fugitive dust control measures specific to nonmetallic mineral processing plants, asphaltic concrete plants, and concrete plants and/or bagging operations. With the revisions to Rule 316, a source subject to Rule 316 would be subject to the fugitive dust control measures in Rule 316 and not in Rule 310. In addition, with the revisions to Rule 316, if a source is subject to Rule 316 but not to the specific fugitive dust control measures in Rule 316, such source would be subject to the fugitive dust control measures in Rule 310.

Consequently, Section 237-Definition Of Open Areas And Vacant Lots and Section 263-Definition Of Urban Or Suburban Area were proposed to be added to Rule 316, in order to match Rule 310 (Fugitive Dust). However, since neither term is used and/or referred to in Rule 316, Maricopa County will delete both terms from Rule 316.

Also, since Rule 316, Section 255-Definition Of Storage Bin is not used in Rule 316 but the term silo is used in Rule 316, Maricopa County will delete the definition of storage bin from Rule 316 and will add the definition of silo to Rule 316.

Comment #51:

The definitions used by the Environmental Protection Agency (EPA), including particle size range, should be included in the definition of particulate matter emissions to be consistent with air quality permit requirements.

Response #51:

Particulate matter emissions are defined in Rule 316 as any and all finely divided solid or liquid materials other than uncombined water released to the ambient air as measured by the applicable state and federal test methods. Although a particle size range is not included in the definition of particulate matter emissions, as written in Rule 316, Rule 316, Section 300-Standards sets limits on the amount (i.e., percent and grains/dry standard cubic foot) of particulate matter emissions emitted from stacks, transfer points on a conveying system, crushers, silos, and truck dumping directly into any screening operation, feed hopper, or crusher.

Comment #52:

Is pollution source included in the definition of process source? Pollution can occur during almost any step in a process; pollution is not limited to the last operation.

Response #52:

As written in Rule 316, process source is defined as the last operation of a process or a distinctly separate process, which produces an air contaminant and which is not a pollution abatement operation. This definition is not intended to imply that pollution is limited to the last operation. The term process source is used in Rule 316 in conjunction with the term affected operation, which is defined in Rule 316 as an operation that processes nonmetallic minerals or that is related to such processing and process sources including, but not limited to, excavating, crushers, grinding mills, screening equipment, conveying systems, elevators, transfer points, bagging operations, storage bins, enclosed truck and railcar loading stations, and truck dumping.

The purpose of Rule 316 is to limit the emission of particulate matter into the ambient air from any commercial and/or industrial nonmetallic mineral processing plant and/or rock product processing plant. Rule 316 sets limits on the amount (i.e., percent and grains/dry standard cubic foot) of particulate matter emissions emitted from stacks, transfer points on a conveying system, crushers, silos, and truck dumping directly into any screening operation, feed hopper, or crusher.

Comment #53:

What is meant by open area in the definition of urban or suburban area?

Response #53:

Historically, Rule 316 has contained only emission limitations and not fugitive dust control measures specific to nonmetallic mineral processing plants, asphaltic concrete plants, and concrete plants and/or bagging operations. Sources subject to Rule 316 have been required to implement and/or comply with fugitive dust control measures described in Rule 310 (Fugitive Dust).

The revisions to Rule 316 include fugitive dust control measures specific to nonmetallic mineral processing plants, asphaltic concrete plants, and concrete plants and/or bagging

operations. With the revisions to Rule 316, a source subject to Rule 316 would be subject to the fugitive dust control measures in Rule 316 and not in Rule 310. In addition, with the revisions to Rule 316, if a source is subject to Rule 316 but not to the specific fugitive dust control measures in Rule 316, such source would be subject to the fugitive dust control measures in Rule 310.

Consequently, Section 237-Definition Of Open Areas And Vacant Lots and Section 263-Definition Of Urban Or Suburban Area were proposed to be added to Rule 316, in order to match Rule 310 (Fugitive Dust). However, since neither term is used and/or referred to in Rule 316, Maricopa County will delete both terms from Rule 316.

Also, since Rule 316, Section 255-Definition Of Storage Bin is not used in Rule 316 but the term "silo" is used in Rule 316, Maricopa County will delete the definition of storage bin from Rule 316 and will add the definition of silo to Rule 316.

Comment #54:

In Section 301.1-Nonmetallic Mineral Processing Plants-Process Emission Limitations draft August 25, 2004 and draft October 28, 2004, Maricopa County is requiring that stack emissions from nonmetallic mineral processing plants be vented to a properly sized fabric filter baghouse. Are all baghouses fabric? What does the Environmental Protection Agency (EPA) say about this?

Response #54:

Rule 316 requires that particulate matter emissions be controlled by and collected in fabric filter baghouses at stacks for nonmetallic mineral processing plants and at silos and drum dryers for asphaltic concrete plants. As written in Rule 316, a fabric filter baghouse is a tube-shaped filter bag/long small-diameter fabric tube referred to as a "bag" arranged in parallel flow paths designed to separate particles and flue gases.

According to the Air Pollution Control Technology Verification Center (APCTVC) – part of the EPA's Environmental Technology Verification Program - fabric filters may be in the form of sheets, cartridges, or bags, with a number of the individual fabric filter units housed together in a group. Groups of bags are placed in isolable compartments to allow cleaning of the bags or replacement of some of the bags without shutting-down the entire fabric filter. Because the fabric is usually configured in cylindrical bags, fabric filters are frequently referred to as baghouses, which are the most common type of fabric filter.

In fabric filters (i.e. fabric filter baghouses), flue gas is passed through a tightly woven or coarsely woven fabric (scrim), synthetic, or glass-fiber material configured in either a tube or an envelope shape. Particulate matter in the flue gas is collected on the fabric by sieving and/or shaking. However, it is not the cloth/fabric that does the filtering, but rather the cake on the filter that stops particulate matter from flowing through the baghouse and ultimately into the ambient air.

Shaker and reverse-air baghouses normally use woven fabric bags, run at relatively low face velocities, and have cake filtration as the major particle removal mechanism. That is, the fabric

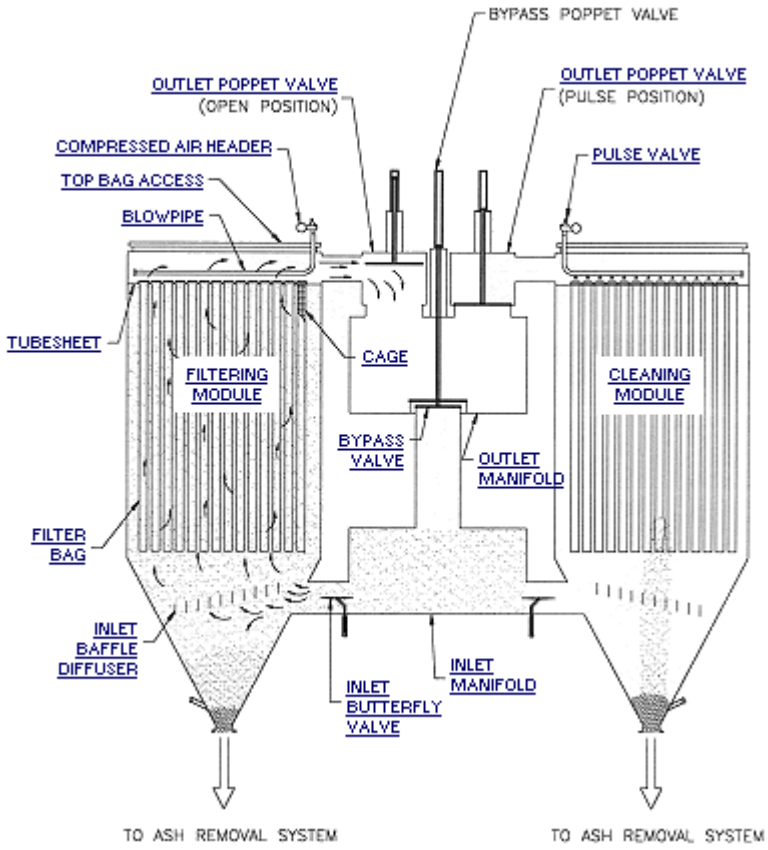
merely serves as a substrate for the formation of a cake that is the actual filtration medium. Pulse-jet baghouses generally use felt fabric and run with a high gas-to-cloth ratio (about double that of shaker or reverse-air baghouses). The felt fabric may play a much more active role in the filtration process. This distinction between cake filtration and fabric filtration has important implications for the rate of pressure loss across the filter bags. The theoretical description and design process for cake filtration is quite different from that for fabric filtration. Fabric selection is aided by bench-scale filtration tests to investigate fabric effects on pressure drop, cake release during cleaning, and collection efficiency.

Practical application of fabric filters requires the use of a large fabric area in order to avoid an unacceptable pressure drop across the fabric. Baghouse size for a particular unit is determined by the choice of air-to-cloth ratio or the ratio of volumetric air flow to cloth area. The selection of air-to-cloth ratio depends on the particulate loading, particulate characteristics, and the cleaning method used. A high particulate loading will require the use of a larger baghouse, in order to avoid forming too heavy a cake, which would result in an excessive pressure drop.

Determinants of baghouse performance include the fabric chosen, the cleaning frequency and methods, and the particulate characteristics. Some fabrics intercept a greater fraction of particulate and some fabrics are coated with a membrane with very fine openings for enhanced removal of submicron particulate. Because the cake can provide a significant fraction of the fine particulate removal capability of a fabric, cleaning too intensely or too frequently will lower the removal efficiency. On the other hand, if cleaning is done too infrequently or too ineffectively, then the baghouse pressure drop becomes too high and will lower the removal efficiency.

Fabric filters in general provide high collection efficiencies on both coarse and fine (submicron) particulates and are relatively insensitive to fluctuations in gas stream conditions. Efficiency and pressure drop are relatively unaffected by large changes in inlet dust loadings for continuously cleaned filters. Filter outlet air is very clean and may be re-circulated within the plant in many cases (for energy conservation). Collected material is collected dry for subsequent processing or disposal. Corrosion and rusting components are usually not problems.

A typical fabric filter baghouse system is shown below.



Comment #55:

In Section 306.1(a)-Fugitive Dust Emission Limitations And Fugitive Dust Control Measures-Wind Event draft August 25, 2004 and in Section 306.3-Fugitive Dust Emission Limitations-Wind Event draft October 28, 2004, Maricopa County should require that operations should also cease, if there is a health warning to the community about particulate or ozone levels for that day, as when people are asked to limit their driving on such days.

Response #55:

Maricopa County has not included in Rule 316 a requirement that operations cease, when there is a health warning to the community about particulate or ozone levels. Instead, Arizona Revised Statutes (ARS) §49-465-Air Pollution Emergency takes precedence regarding establishing requirements and procedures for declaring a health warning to the community. According to ARS §49-465, if the director of the Arizona Department Of Environmental Quality (ADEQ) determines that air pollution in any area constitutes or may constitute an emergency risk to the health of those in the area or that national ambient air quality standards are likely to be exceeded, such determination must be communicated to the governor. The governor may, by proclamation, declare that an emergency exists and may prohibit, restrict, or condition the following: (1) motor vehicle traffic, (2) the operation of retail, commercial, manufacturing, governmental, industrial, or similar activity, (3) operation of incinerators, (4) the burning or other

consumption of fuels, (5) the burning of any materials whatsoever, and (6) any and all other activity which contributes or may contribute to the emergency.

Comment #56:

In Section 306.2-Fugitive Dust Emission Limitations And Fugitive Dust Control Measures-Certified Method 9 Observer draft August 25, 2004 and in Section 307.11-Fugitive Dust Control Measures-Fugitive Dust Control Measures At Night draft October 28, 2004, Maricopa County should require that opacity be measured at night as well as during the day.

Response #56:

Rule 316 requires an owner and/or operator of a facility to implement fugitive dust control measures and to have such measures approved in a Dust Control Plan. Also, Rule 316 requires an owner and/or operator of a facility with a rated or permitted capacity of 25 tons or more of material per hour to have in place a Fugitive Dust Control Technician, who must be authorized to conduct routine inspections, recordkeeping, and reporting – whether day or night - to ensure that all fugitive dust control measures are installed, maintained, and used in compliance with Rule 316 and who must be certified to determine opacity as visible emissions in accordance with the provisions of the Environmental Protection Agency (EPA) Method 9.

Comment #57:

Maricopa County should change Section 307-Dust Control Plan draft August 25, 2004, so that Section 307 does not change requirements specified in earlier sections. Not all fugitive dust emissions are 20% opacity.

Response #57:

In Rule 316, Maricopa County has deleted from the Dust Control Plan requirement the text "in order to prevent fugitive dust emissions from exceeding 20%". The Dust Control Plan requirement now reads: The owner and/or operator of a facility shall submit to the Control Officer a Dust Control Plan that describes all fugitive dust control measures to be implemented, in order to comply with Section 306 and Section 307 of this rule. The Dust Control Plan shall, at a minimum, contain all the information described in Rule 310 (Fugitive Dust) of these rules. All other criteria associated with the Dust Control Plan shall meet the criteria described in Rule 310 (Fugitive Dust) of these rules.

Comment #58:

In Section 308-Fugitive Dust Control Technician draft October 28, 2004, Maricopa County should add a requirement for the use of and training for the use of methods of determining opacity at night. The requirement for opacity doesn't say that it's a daylight requirement. There are plenty of witnesses who have seen lights obscured at night because of dust.

Response #58:

Rule 316 requires an owner and/or operator of a facility to implement fugitive dust control measures and to have such measures approved in a Dust Control Plan. Also, Rule 316 requires an

owner and/or operator of a facility with a rated or permitted capacity of 25 tons or more of material per hour to have in place a Fugitive Dust Control Technician, who must be authorized to conduct routine inspections, recordkeeping, and reporting – whether day or night - to ensure that all fugitive dust control measures are installed, maintained, and used in compliance with Rule 316 and who must be certified to determine opacity as visible emissions in accordance with the provisions of the Environmental Protection Agency (EPA) Method 9.

Comment #59:

In Section 502.2-Compliance Determination-40 Part 60, Appendix A Test Methods Adopted By Reference-Opacity Determination draft October 28, 2004, Maricopa County should require that opacity be measured at night as well as during the day.

Response #59:

Rule 316 requires an owner and/or operator of a facility to implement fugitive dust control measures and to have such measures approved in a Dust Control Plan. Also, Rule 316 requires an owner and/or operator of a facility with a rated or permitted capacity of 25 tons or more of material per hour to have in place a Fugitive Dust Control Technician, who must be authorized to conduct routine inspections, recordkeeping, and reporting – whether day or night - to ensure that all fugitive dust control measures are installed, maintained, and used in compliance with Rule 316 and who must be certified to determine opacity as visible emissions in accordance with the provisions of the Environmental Protection Agency (EPA) Method 9.

12. Any other matters prescribed by the statute that are applicable to the specific department or to any specific rule or class of rules:

None

13. Incorporations by reference and their location in the rules:

Incorporation By Reference	Location
EPA Reference Methods 1 - 5	Rule 316, Section 502.1
ASTM Method D2216-98	Rule 316, Section 503.1
ASTM Method D1557-91	Rule 316, Section 503.2
Appendix C (Fugitive Dust Test Methods)	Rule 316, Section 504
South Coast Air Quality Management Rule 1186 Street Sweeping Certification List	Rule 316, Section 505

14. Was this rule previously an emergency rule?

No

15. The full text of the rules follows:

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NONMETALLIC MINERAL ~~MINING AND~~ PROCESSING
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Adopted 07/06/93
Revised 04/21/99

MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS
REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 316
NONMETALLIC MINERAL ~~MINING AND~~ PROCESSING

SECTION 100 - GENERAL

101 **PURPOSE:** To limit the emission of particulate matter into the ambient air from any nonmetallic ~~mining operation~~ mineral processing plant ~~or~~ and/or rock product processing plant.

102 **APPLICABILITY:** The provisions of this rule shall apply to any commercial and/or industrial nonmetallic mineral ~~mining~~ processing plant and/or rock product processing plant ~~operation~~. Compliance with the provisions of this rule shall not relieve any person subject to the requirements of this rule from complying with any other federally enforceable New Source Performance Standards. In such case, the more stringent standard shall apply.

SECTION 200 - DEFINITIONS: ~~For the purpose of this rule, the following definitions shall apply:~~ See Rule 100 (General Provisions And Definitions) of these rules for definitions of terms that are used but not specifically defined in this rule. For the purpose of this rule, the following definitions shall apply:

201 **AFFECTED OPERATION -** An operation that processes nonmetallic minerals or that is related to such processing and process sources including, but not limited to, excavating, crushers, grinding mills, screening equipment, conveying systems, elevators, transfer points, bagging operations, storage bins, enclosed truck and railcar loading stations, and truck dumping.

202 **AGGREGATE TRUCK** – Any truck with an open top used to transport the products of nonmetallic mineral processing plants and/or rock product processing plants.

~~202~~ **203** **APPROVED EMISSION CONTROL SYSTEM -** A system for reducing particulate emissions, consisting of collection and/or control devices which are approved in writing by the Control Officer and are designed and operated in accordance with good engineering practice.

204 **AREA ACCESSIBLE TO THE PUBLIC** - Any retail parking lot or public roadway that is open to public travel primarily for the purposes unrelated to the dust generating operation.

~~203~~ **205** **ASPHALTIC CONCRETE PLANT/ASPHALT PLANT -** Any facility used to manufacture asphaltic concrete by mixing graded aggregate and asphaltic cements.

~~204~~ **206** **BAGGING OPERATION -** The mechanical process by which bags are filled with nonmetallic minerals.

207 **BATCH TRUCK** – Any truck that loads and transports products produced by batch.

~~205~~ **208** **BELT CONVEYOR -** A conveying device that transports material from one location to another by means of an endless belt that is carried on a series of idlers and routed around a pulley at each end.

209 **BERMS AND GUARD RAILS** - A pile or mound of material along an elevated roadway capable of moderating or limiting the force of a vehicle in order to impede the vehicle's passage over the bank of the roadway.

210 **BULK MATERIAL** - Any material including, but not limited to, earth, rock, silt, sediment, sand, gravel, soil, fill, aggregate less than two inches in length or diameter (i.e., aggregate base course (ABC)), dirt, mud, demolition debris, cotton, trash, cinders, pumice, saw dust, feeds, grains, fertilizers, fluff (from shredders), and dry concrete, that is capable of producing fugitive dust.

211 **COHESIVE HARD SURFACE** – Any material including, but not limited to, pavement, recycled asphalt mixed with a binder, or a dust suppressant other than water applied and maintained as a roadway surface.

~~206~~ **212** **CONCRETE PLANT -** Any facility used to manufacture concrete by mixing water, aggregate, and cement.

~~207~~ **213** **CONVEYING SYSTEM -** A device for transporting materials from one piece of equipment or location to another location within a facility. Conveying systems include, but are not limited to, feeders, belt conveyers, bucket elevators and ~~pneumatic~~ pressure control systems.

~~208~~ **214** **CRUSHER -** A machine used to crush any nonmetallic minerals including, but not limited to, the following types: jaw, gyratory, cone, roll, rod mill, hammermill, and impactor.

215 **DISTURBED SURFACE AREA** - A portion of the earth's surface (or material placed thereupon) which has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed native condition, thereby increasing the potential for the emission of fugitive dust.

~~209~~ **216** **DRY MIX CONCRETE PLANT -** Any facility used to manufacture a mixture of aggregate and cements without the addition of water.

217 **DUST GENERATING OPERATION** - Any activity capable of generating fugitive dust including, but not limited to, land clearing, earthmoving, weed abatement by discing or blading, excavating, construction, demolition, bulk material handling, storage and/or transporting operations, vehicle use and movement, the operation of any outdoor equipment, or unpaved parking lots. For the purpose of this rule, landscape maintenance and playing on or maintaining a field used for non-motorized sports shall not be considered a dust generating operation. However, landscape maintenance shall not include grading, trenching, or any other mechanized surface disturbing activities performed to establish initial landscapes or to redesign existing landscapes.

218 **DUST SUPPRESSANT** - Water, hygroscopic material, solution of water and chemical surfactant, foam, non-toxic chemical stabilizer, or any other dust palliative, which is not prohibited for ground surface application by the EPA or the Arizona Department of Environmental Quality (ADEQ), or any applicable law, rule, or regulation, as a treatment material for reducing fugitive dust emissions.

~~210~~ **219** **ENCLOSED TRUCK OR RAILCAR LOADING STATION -** That portion of a nonmetallic mineral processing plant where nonmetallic minerals are loaded by an enclosed conveying system into enclosed trucks or railcars.

220 **END OF WORK DAY –** The end of a working period that may include one or more work shifts but not later than 8 pm.

221 **FABRIC FILTER BAGHOUSE** - Tube-shaped filter bags/Long small-diameter fabric tubes referred to as ‘bags’ arranged in parallel flow paths designed to separate particles and flue gas.

222 **FREEBOARD** - The vertical distance between the top edge of a cargo container area and the highest point at which the bulk material contacts the sides, front, and back of a cargo container area.

223 **FUGITIVE DUST CONTROL MEASURE** - A technique, practice, or procedure used to prevent or minimize the generation, emission, entrainment, suspension, and/or airborne transport of fugitive dust.

224 **FUGITIVE DUST CONTROL TECHNICIAN** - A person with the authority to expeditiously employ sufficient fugitive dust control measures to ensure compliance with Rule 316 of these rules at an active operation.

~~211~~ **225** **FUGITIVE DUST EMISSION -** Particulate matter ~~that is~~ not collected by a capture system ~~and~~ that is ~~released to and suspended~~ entrained in the ambient air~~.~~ and is caused from human and/or natural activities.

~~212~~ **226** **GRINDING MILL -** A machine used for the wet or dry fine crushing of any nonmetallic mineral. Grinding mills include, but are not limited to, the following types: hammer, roller, rod, pebble and ball, and fluid energy. The grinding mill includes the air conveying system, air separator, or air classifier, where such systems are used.

227 **HAUL/ACCESS ROAD** – Any on-site unpaved road that is used by haul trucks to carry materials from the quarry to different locations within the facility.

228 **HAUL TRUCK** - Any fully or partially open-bodied self-propelled vehicle including any non-motorized attachments, such as but not limited to, trailers or other conveyances that are connected to or propelled by the actual motorized portion of the vehicle used for transporting bulk materials.

229 **INFREQUENT OPERATIONS** – Operations that have State mine identification, approved reclamation plans and bonding as required by State Mining And Reclamation Act of 1975, and only operate on an average of 52 days per year over the past three years from (the adoption date of this rule).

230 **MATERIAL DELIVERY TRUCK** – Any truck that loads and transports product to customers.

231 **MIXER TRUCK** – Any truck that mixes cement and other ingredients in a drum to produce concrete.

232 **MOTOR VEHICLE** - A self-propelled vehicle for use on the public roads and highways of the State of Arizona and required to be registered under the Arizona State Uniform Motor Vehicle Act, including any non-motorized attachments, such as but not limited to, trailers or other conveyances which are connected to or propelled by the actual motorized portion of the vehicle.

233 **NEW FACILITY** - A facility subject to this rule that has not been operated by such facility prior to June 8, 2005.

~~213~~ **234** **NONMETALLIC MINERAL -** Any of the following minerals or any mixture of which the majority is any of the following minerals:

~~213.1~~ **234.1** Crushed and broken stone, including limestone, dolomite, granite, rhyolite, traprock, sandstone, quartz, quartzite, marl, marble, slate, shale, oil shale, and shell.

~~213.2~~ **234.2** Sand and gravel.

~~213.3~~ **234.3** Clay including kaolin, fireclay, bentonite, fuller's earth, ball clay, and common clay.

~~213.4~~ **234.4** Rock salt.

~~213.5~~ **234.5** Gypsum.

~~213.6~~ **234.6** Sodium compounds including sodium carbonate, sodium chloride, and sodium sulfate.

~~213.7~~ **234.7** Pumice.

~~213.8~~ **234.8** Gilsonite.

~~213.9~~ **234.9** Talc and pyrophyllite.

~~213.10~~ **234.10** Boron including borax, kernite, and colemanite.

~~213.11~~ **234.11** Barite.

~~213.12~~ **234.12** Fluorspar.

~~213.13~~ **234.13** Feldspar.

~~213.14~~ **234.14** Diatomite.

~~213.15~~ **234.15** Perlite.

~~213.16~~ **234.16** Vermiculite.

~~213.17~~ **234.17** Mica.

~~213.18~~ **234.18** Kyanite including andalusite, sillimanite, topaz, and dumortierite.

~~213.19~~ **234.19** Coal.

~~214~~ **235** **NONMETALLIC MINERAL PROCESSING PLANT -** Any facility utilizing any combination of equipment or machinery that is used to mine, excavate, separate, combine, crush, or grind any nonmetallic mineral including, but not limited to, lime plants, coal fired power plants, steel mills, asphalt plants, concrete plants, Portland cement plants, and sand and gravel plants. Rock Product Processing Plants are included in this definition.

236 **OPEN STORAGE PILE** - Any accumulation of bulk material with a 5% or greater silt content which in any one point attains a height of three feet and covers a total surface area of 150 square feet or more. Silt content shall be assumed to be 5% or greater unless a person can show, by testing in accordance with ASTM Method C136-01 or other equivalent method approved in writing by the Control Officer and the Administrator of the Environmental Protection Agency (EPA), that the silt content is less than 5%. For the purpose of this rule, the definition of open storage pile does not include berms and guard rails that are installed to comply with 30 Code Of Federal Regulations (CFR) 56.93000.

237 **OVERBURDEN OPERATION** – An operation that removes and/or strips soil, rock, or other materials that lie above a natural nonmetallic mineral deposit and/or in-between a natural nonmetallic mineral deposit.

~~215~~ ~~PARTICULATE MATTER - Any material, except uncombined water, which has a nominal aerodynamic diameter smaller than 100 microns (micrometers), and which exists in a finely divided form as a liquid or solid at actual conditions.~~

~~216~~ **238** **PARTICULATE MATTER EMISSIONS -** Any and all finely divided solid or liquid materials other than uncombined water released to the ambient air as measured by the applicable state and federal test methods.

239 **PAVE** - To apply and maintain asphalt, concrete, or other similar material to a roadway surface (i.e., asphaltic concrete, concrete pavement, chip seal, rubberized asphalt, or recycled asphalt mixed with a binder).

240 **PORTLAND CEMENT PLANT** - Any facility that manufactures Portland Cement using either a wet or dry process.

241 **PRESSURE CONTROL SYSTEM -** System in which loads are moved in the proper sequence, at the correct time, and at the desired speed through use of valves that control the direction of air flow, regulate actuator speed, and respond to changes in air pressure.

~~217~~ **242** **PROCESS -** One or more operations including those using equipment and technology in the production of goods or services or the control of by-products or waste.

~~218~~ **243** **PROCESS SOURCE -** The last operation of a process or a distinctly separate process which produces an air contaminant and which is not a pollution abatement operation.

244 **PRODUCTION WORK SHIFT** – An eight hour operating period based on the 24-hour operating schedule.

245 **PUBLIC ROADWAYS** - Any roadways that are open to public travel.

246 **RETURNED PRODUCTS** – Left-over concrete or asphalt products that were not used at a job site and were returned to the facility.

247 **RUMBLE GRATE** – A system where the vehicle is vibrated while traveling over grates with the purpose of removing dust and other debris.

~~219~~ **248** **SCREENING OPERATION -** A device that separates material according to its size by passing undersize material through one or more mesh surfaces (screens) in series and retaining oversize material on the mesh surfaces (screens).

249 **SILO** - An elevated storage container, with or without a top, that releases material thru the bottom.

250 **SILT** - Any aggregate material with a particle size less than 75 micrometers in diameter, which passes through a No. 200 Sieve.

251 **SPILLAGE** - Any quantity of nonmetallic minerals/materials that spill while being processed or after having been processed by an affected operation, where such spilled nonmetallic minerals/materials can generate or cause fugitive dust emissions.

~~220~~ **252** **STACK EMISSIONS -** The particulate matter emissions that are released to the atmosphere from a capture system through a building vent, stack or other point source discharge.

253 **STAGING AREA** – A place where aggregate trucks and mixer trucks temporarily queue for their loading or unloading.

~~221~~ ~~STORAGE BIN - A facility enclosure, hopper, silo or surge bin for the storage of nonmetallic minerals prior to further processing or loading.~~

254 **TEMPORARY FACILITY** - A facility that occupies a designated site for not more than 180 days in a calendar year.

255 **TRACKOUT** - Any and all bulk materials that adhere to and agglomerate on the surfaces of motor vehicles, haul trucks, and/or equipment (including tires) and that have fallen or been deposited onto a paved area accessible to the public.

256 **TRACKOUT CONTROL DEVICE** - A gravel pad, grizzly, wheel washer, rumble grate, paved area, truck washer, or other equivalent trackout control device located at the point of intersection of an unpaved area and a paved area accessible to the public that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of aggregate trucks, haul trucks, and/or motor vehicles that traverse a facility.

~~222~~ **257** **TRANSFER POINT** - A point in a conveying operation where nonmetallic mineral is transferred from or to a belt conveyor except for transfer to a stockpile.

~~223~~ **258** **TRUCK DUMPING** - The unloading of nonmetallic minerals from movable vehicles designed to transport nonmetallic minerals from one location to another. Movable vehicles include, but are not limited to, trucks, front end loaders, skip hoists, and railcars.

259 **TRUCK WASHER** – A system that is used to wash the entire surface and the tires of a truck.

260 **UNPAVED ROAD** – Any roads, equipment paths, or travel ways that are not covered by typical roadway materials. Public unpaved roads are any unpaved roadway owned by Federal, State, county, municipal, or governmental or quasi-governmental agencies. Private unpaved roads are all other unpaved roadways not defined as public. Unpaved internal roads are private unpaved roads within the facility's property boundary.

~~224~~ **261** **VENT -** An opening through which there is mechanically or naturally induced air flow for the purpose of exhausting air carrying particulate matter.

262 **WHEEL WASHER** – A system that is capable of washing the entire circumference of each wheel of the vehicle.

263 **WIND EVENT -** When the 60-minute average wind speed is greater than 25 miles per hour.

SECTION 300 - STANDARDS

301 ~~LIMITATIONS~~ **NONMETALLIC MINERAL PROCESSING PLANTS - PROCESS EMISSION LIMITATIONS AND CONTROLS:** ~~No person shall discharge or cause or allow to be discharged into the ambient air:~~

301.1 **Process Emission Limitations:** The owner and/or operator of a nonmetallic mineral processing plant shall not discharge or cause or allow to be discharged into the ambient air:

a. Stack emissions exceeding 7% opacity and containing more than 0.02 grains/dry standard cubic foot (gr/dscf) (50 mg/dscm) of particulate matter. Such stack emissions shall be vented to a properly sized fabric filter baghouse.

~~301.2~~ **b.** Fugitive dust emissions exceeding 7% opacity from any transfer point on a conveying system.

~~301.3~~ **c.** Fugitive dust emissions exceeding 15% opacity from any crusher.

~~301.4~~ **d.** Fugitive dust emissions exceeding 10% opacity from any affected operation or process source, excluding truck dumping directly into any screening operation, feed hopper, or crusher.

~~301.5~~ **e.** Fugitive dust emissions exceeding 20% opacity from truck dumping directly into any screening operation, feed hopper, or crusher.

301.2 **Controls:** For crushing and screening facilities, the owner and/or operator of a nonmetallic mineral processing plant shall implement all of the following process controls:

a. Enclose sides of all shaker screens.

b. Permanently mount watering systems (e.g., spray bars or an equivalent control) on:

(1) Inlet and outlet of all crushers;

(2) Outlet of all shaker screens; and

(3) Outlet of all material transfer points, excluding wet plants.

302 ~~LIMITATIONS~~ **ASPHALTIC CONCRETE PLANTS - PROCESS EMISSION LIMITATIONS AND CONTROLS:** ~~No person shall discharge or cause or allow to be discharged into the ambient air:~~

302.1 ~~Stack emissions exceeding 20% opacity and containing more than 0.04 gr/dscf (90 mg/dscm) of particulate matter.~~ **Process Emission Limitations:** The owner and/or operator of an asphaltic concrete plant shall not discharge or cause or allow to be discharged into the ambient air:

a. For non-rubberized asphaltic concrete plants, stack emissions exceeding 5% opacity and containing more than 0.04 gr/dscf (90 mg mg/dscm) of particulate matter over a 6-minute period.

b. For rubberized asphaltic concrete plants (when producing rubberized asphalt only), stack emissions exceeding 20% opacity and containing more than 0.04 gr/dscf (90 mg mg/dscm) of particulate matter over a 6-minute period.

c. From all cement, lime, and/or fly-ash storage silo(s), fugitive dust emissions exceeding 20% opacity.

302.2 ~~Fugitive dust emissions exceeding 20% opacity from any other affected operation or process source.~~ **Controls:** The owner and/or operator of an asphaltic concrete plant shall implement all of the following process controls:

a. On all cement, lime, and/or fly-ash storage silo(s), install an operational overflow warning system/device. The system/device shall be designed to alert operator(s) to stop the loading operation when the cement, lime, and/or fly-ash storage silo(s) are reaching a capacity that could adversely impact pollution abatement equipment.

b. On existing cement, lime, and/or fly-ash storage silo(s), install a properly sized fabric filter baghouse, with an opacity limit of not greater than 5% over a 6-minute period.

c. On new cement, lime, and/or fly-ash storage silo(s), install a properly sized fabric filter baghouse or equivalent device designed to meet a maximum outlet grain loading of 0.01 gr/dscf, with an opacity limit of not greater than 5% over a 6-minute period.

d. From all drum dryers, control and vent exhaust to a properly sized fabric filter baghouse, with an opacity limit of not greater than 5% over a 6-minute period.

303 ~~LIMITATIONS CONCRETE PLANTS AND BAGGING OPERATIONS:~~ **CONCRETE PLANTS AND/OR BAGGING OPERATIONS - PROCESS EMISSION LIMITATIONS AND CONTROLS:** ~~No person shall discharge or cause or allow to be discharged into the ambient air:~~

303.1 ~~Stack emissions exceeding 7% opacity.~~ **Process Emission Limitations:** The owner and/or operator of a concrete plant and/or bagging operation shall not discharge or cause or allow to be discharged into the ambient air:

a. Stack emissions exceeding 7% opacity.

~~303.2~~ **b.** Fugitive dust emissions exceeding 10% opacity from any affected operation or process source, excluding truck dumping directly into any screening operation, feed hopper, or crusher.

c. Fugitive dust emissions exceeding 20% opacity from truck dumping directly into any screening operation, feed hopper, or crusher.

~~303.3~~ **303.2** ~~Fugitive dust emissions exceeding 20% opacity from truck dumping directly into any screening operation, feed hopper, or crusher.~~ **Controls:** The owner and/or operator of a concrete plant and/or bagging operation shall implement the following process controls:

a. On all cement, lime, and/or fly-ash storage silo(s), install an operational overflow warning system/device. The system/device shall be designed to alert operator(s) to stop the loading operation when the cement, lime, and/or fly-ash storage silo(s) are reaching a capacity that could adversely impact pollution abatement equipment.

b. On existing cement, lime, and/or fly-ash storage silo(s), install a properly sized fabric filter baghouse, with an opacity limit of not greater than 5% over a 6-minute period.

c. On new cement, lime, and/or fly-ash storage silos, install a properly sized fabric filter baghouse or equivalent device designed to meet a maximum outlet grain loading of 0.01 gr/dscf.

d. On dry mix concrete plant loading stations/truck mixed product, implement one of the following process controls:

(1) Install a rubber fill tube;

(2) Install a water spray;

(3) Install a properly sized fabric filter baghouse or delivery system;

(4) Enclose mixer loading stations such that no visible emissions occur; or

(5) Conduct mixer loading stations in an enclosed process building such that no visible emissions from the building occur during the mixing activities.

e. On cement silo filling processing/loading operations controls, install a pressure control system designed to shut-off cement silo filling processes/loading operations, if pressure from delivery truck is excessive, as defined in O&M Plan.

304 ~~LIMITATIONS~~ **OTHER ASSOCIATED OPERATIONS:** All other ~~activities~~ affected operations or process sources not specifically listed in Sections 301, 302, or 303 of this rule associated with the ~~mining and~~ processing of nonmetallic minerals, all other fugitive dust emission limitations not specifically listed in Section 306 of this rule, all other fugitive dust control measures not specifically listed in Section 307 of this rule, and all overburden operations shall, at a minimum, meet the provisions of Rule 310 of these rules.

305 ~~REQUIREMENT FOR~~ **AIR POLLUTION CONTROL EQUIPMENT AND APPROVED EMISSION CONTROL SYSTEM (ECS)** ~~MONITORING EQUIPMENT~~**:** ~~For the purposes of this rule, an emission control system (ECS) is a system for reducing emissions of particulates, consisting of both collection and control devices, which are approved in writing by the Control Officer and are designed and operated in accordance with good engineering practices.~~

305.1 Operation And Maintenance (O&M) Plan Requirements For ECS:

a. An owner ~~or~~ and/or operator of a facility shall provide and maintain, readily available on-site at all times, (an) O&M Plan(s) for any ECS, any other emission processing equipment, and any ECS monitoring devices that are used pursuant to this rule or to an air pollution control permit.

b. The owner ~~or~~ and/or operator of a facility shall submit to the Control Officer for approval the O&M Plan(s) ~~of~~ for each ECS and ~~of~~ for each ECS monitoring device that is used pursuant to this rule.

c. The owner ~~or~~ and/or operator of a facility shall comply with all the identified actions and schedules provided in each O&M Plan.

305.2 **Providing And Maintaining ECS Monitoring Devices:** An owner ~~or~~ and/or operator of a facility operating an ECS pursuant to this rule shall install, maintain, and calibrate monitoring devices described in the O&M ~~Plan~~ Plan(s). The monitoring devices shall measure pressures, rates of flow, and/or other operating conditions necessary to determine if the control devices are functioning properly.

305.3 **O&M Plan Responsibility:** An owner ~~or~~ and/or operator of a facility that is required to have an O&M Plan pursuant to ~~subsection 305.1~~ Section 305.1 of this rule must fully comply with all O&M Plans that the owner ~~or~~ and/or operator has submitted for approval, even if such O&M Plans have not yet been approved, unless notified in writing by the Control Officer.

306 FUGITIVE DUST EMISSION LIMITATIONS:

306.1 **20% Opacity Limitation:** The owner and/or operator of a facility shall not discharge or cause or allow to be discharged into the ambient air fugitive dust emissions exceeding 20% opacity, in accordance with the test methods described in Section 502 of this rule and in Appendix C (Fugitive Dust Test Methods) of these rules.

306.2 **Visible Emission Limitation Beyond Property Line:** An owner and/or operator of a facility shall not cause or allow fugitive dust emissions from any active operation, open storage pile, or disturbed surface area associated with such facility such that the presence of such fugitive dust emissions remain visible in the atmosphere beyond the property line of such facility.

306.3 **Wind Event:** The fugitive dust emission limitations described in Section 306.1 and Section 306.2 of this rule shall not apply during a wind event, if the owner and/or operator of a facility meets the following conditions:

a. Has implemented the fugitive dust control measures described in Section 307 of this rule, as applicable;

b. Has compiled and retained records, in accordance with Section 501.4 of this rule, and has documented by records the occurrence of a wind event on the day(s) in question. The occurrence of a wind event must be determined by the nearest Maricopa County Environmental Services

Department Air Quality Division monitoring station, from any other certified meteorological station, or by a wind instrument that is calibrated according to manufacturer's standards and that is located at the site being checked; and

c. Has implemented the following high wind fugitive dust control measures, as applicable:

(1) For an active operation, implement one of the following fugitive dust control measures, in accordance with the test methods described in Section 503 and Section 504 of this rule and in Appendix C (Fugitive Dust Test Methods) of these rules:

(a) Cease active operation that may contribute to an exceedance of the fugitive dust emission limitations described in Section 306.1 and Section 306.2 of this rule for the duration of the wind event and, if active operation is ceased for the remainder of the work day, stabilize the area; or

(b) Maintain a visible crust by applying water or other suitable dust suppressant other than water or by implementing another fugitive dust control measure, in sufficient quantities to meet the stabilization standards described in Section 503 and Section 504 of this rule.

(2) For an open storage pile, implement one of the following fugitive dust control measures, in accordance with the test methods described in Section 503 and Section 504 of this rule and in Appendix C (Fugitive Dust Test Methods) of these rules:

(a) Maintain a visible crust by applying water or other suitable dust suppressant other than water or by implementing another fugitive dust control measure, in sufficient quantities to meet the stabilization standards described in Section 503 and Section 504 of this rule.

(b) Cover open storage pile with tarps, plastic, or other material such that wind will not remove the covering, if open storage pile is less than eight feet high.

(3) For a disturbed surface area, implement one of the following fugitive dust control measures, in accordance with the test methods described in Section 503 and Section 504 of this rule and in Appendix C (Fugitive Dust Test Methods) of these rules:

(a) Uniformly apply and maintain surface gravel or a dust suppressant other than water; or

(b) Maintain a visible crust by applying water or other suitable dust suppressant other than water or by implementing another fugitive dust control measure, in sufficient quantities to meet the stabilization standards described in Section 503 and Section 504 of this rule.

306.4 Silt Loading And Silt Content Standards For Unpaved Internal Roads And Unpaved Parking And Staging Areas: From unpaved internal roads and unpaved parking and staging areas, the owner and/or operator of a facility shall not discharge or allow to be discharged into the ambient air fugitive dust emissions exceeding 20% opacity, in accordance with the test methods described in Section 502 of this rule and in Appendix C (Fugitive Dust Test Methods) of these rules, and one of the following:

a. Silt loading equal to or greater than 0.33 oz/ft^2; or

b. Silt content exceeding 6%.

306.5 Stabilization Standards:

a. An owner and/or operator of a facility shall be considered in violation of this rule if any open storage pile and material handling or surface soils where support equipment and vehicles operate in association with such facility is not maintained in a manner that meets at least one of the standards listed below, as applicable.

(1) Maintain a visible crust;

(2) Maintain a threshold friction velocity (TFV) for disturbed surface areas corrected for non-erodible elements of 100 cm/second or higher;

(3) Maintain a flat vegetative cover (i.e., attached (rooted) vegetation or unattached vegetative debris lying on the surface with a predominant horizontal orientation that is not subject to movement by wind) that is equal to at least 50%;

(4) Maintain a standing vegetative cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 30%;

(5) Maintain a standing vegetative cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 10% and where the threshold friction velocity is equal to or greater than 43 cm/second when corrected for non-erodible elements;

(6) Maintain a percent cover that is equal to or greater than 10% for non-erodible elements; or

(7) Comply with a standard of an alternative test method, upon obtaining the written approval from the Control Officer and the Administrator of the Environmental Protection Agency (EPA).

b. If no activity is occurring on an open storage pile and material handling or surface soils where support equipment and vehicles operate in association with such facility and if an open storage pile and material handling or surface soils where support equipment and vehicles operate in association with such facility contain more than one type of disturbance, soil, vegetation, or other characteristics, which are visibly distinguishable, each representative surface shall be tested separately for stability, in an area that represents a random portion of the overall disturbed conditions of the site,

in accordance with the appropriate test methods described in Section 503 and Section 504 of this rule and in Appendix C (Fugitive Dust Test Methods) of these rules and shall be included in or eliminated from the total size assessment of disturbed surface area(s) depending upon test method results.

307 **FUGITIVE DUST CONTROL MEASURES:** The owner and/or operator of a nonmetallic mineral processing plant and/or a rock product processing plant shall implement the fugitive dust control measures described in this section of this rule. When selecting a fugitive dust control measure(s), the owner and/or operator of a facility may consider the site-specific and/or material-specific conditions and logistics of a facility. When doing so, some fugitive dust control measures may be more reasonable to implement than others. Regardless, any fugitive dust control measure that is implemented must achieve the applicable standard(s) described in Section 306 of this rule, as determined by the corresponding test method(s), as applicable, and must achieve other applicable standard(s) set forth in this rule. The owner and/or operator of a facility may submit a request to the Control Officer and the Administrator Of The Environmental Protection Agency (EPA) for the use of alternative control measure(s). The request shall include the proposed alternative control measure, the control measure that the alternative would replace, and a detailed statement or report demonstrating that the measure would result in equivalent or better emission control than the measures prescribed in this rule. Nothing in this rule shall be construed to prevent an owner and/or operator of a facility from making such demonstration. Following a decision by the Control Officer and the Administrator of the EPA to grant the petition, the facility shall incorporate the alternative control measure in any required Dust Control Plan.

307.1 **Open Storage Piles And Material Handling:** The owner and/or operator of a facility shall implement all of the following fugitive dust control measures, as applicable, in compliance with Section 306.1 and Section 306.5 of this rule. For the purpose of this rule, open storage pile(s) and material handling does not include berms and guard rails that are installed to comply with 30 CFR 56.93000. However, such berms and guard rails shall be installed and maintained in compliance with Section 306.1 and Section 306.5 of this rule.

a. Prior to, and/or while conducting stacking, loading, and unloading operations, implement one of the following fugitive dust control measures:

(1) Spray material with water, as necessary; or

(2) Spray material with a dust suppressant other than water, as necessary.

b. When not conducting stacking, loading, and unloading operations, implement one of the following fugitive dust control measures:

(1) Spray material with water, as necessary, in compliance with Section 306.1 and Section 306.5 of this rule;

(2) Maintain a 1.5% or more soil moisture content of the open storage pile(s), in compliance with Section 306.1 and Section 306.5 of this rule;

(3) Locate open storage pile(s) in a pit/in the bottom of a pit. If implementing this fugitive dust control measure, the owner and/or operator of a facility shall also comply with the stabilization standards in Section 306.5 of this rule.

(4) Arrange open storage pile(s) such that storage pile(s) of larger diameter products are on the perimeter and act as barriers to/for open storage pile(s) that could create fugitive dust emissions. If implementing this fugitive dust control measure, the owner and/or operator of a facility shall also comply with the stabilization standards in Section 306.5 of this rule.

(5) Meet one of the stabilization standards in Section 306.5 of this rule; or

(6) Construct and maintain wind barriers, storage silos, or a three-sided enclosure with walls, whose length is no less than equal to the length of the pile, whose distance from the pile is no more than twice the height of the pile, whose height is equal to the pile height, and whose porosity is no more than 50%. If implementing this fugitive dust control measure, the owner

and/or operator of a facility shall also comply with the stabilization standards in Section 306.5 of this rule.

c. When installing new open storage pile(s) at an existing facility and/or when installing new open storage pile(s) at a new facility, the owner and/or operator shall implement all of the following fugitive dust control measures in compliance with Section 306.1 and Section 306.5 of this rule, only if it is determined to be feasible on a case-by-case basis through the Dust Control Plan by assessing the amount of open land available at the property at the time the new open storage pile(s) are formed:

(1) Install the open storage pile(s) at least 25 feet from the property line.

(2) Limit the height of the open storage pile(s) to less than 45 feet.

d. For existing open storage pile(s) and when installing open storage pile(s) for an existing facility or for a new facility, if such open storage pile(s) will be constructed over eight feet high and will not be covered, then the owner and/or operator shall install, use, and maintain a water truck or other method that is capable of completely wetting the surfaces of open storage pile(s) in compliance with Section 306.1 and Section 306.5 of this rule.

307.2 **Surface Stabilization Where Support Equipment And Vehicles Operate:** The owner and/or operator of a facility shall stabilize surface soils where loaders, support equipment, and vehicles will operate by implementing one of the following fugitive dust control measures, in compliance with Section 306.4 and/or Section 306.5 of this rule, as applicable:

a. Pre-water surface soils;

b. Apply and maintain a dust suppressant, other than water; or

c. Apply a gravel pad, in compliance with the Section 307.6(b)(4) of this rule.

307.3 Haul/Access Roads:

a. The owner and/or operator of a facility shall implement one of the following fugitive dust control measures, as applicable, in compliance with Section 306.4 of this rule, before engaging in the use of, or in the maintenance of, haul/access roads. Compliance with the provisions of this section of this rule shall not relieve any person subject to the requirements of this section of this rule from complying with any other federally enforceable requirements (i.e., a permit issued under Section 404 of the Clean Water Act).

(1) Install and maintain bumps, humps, or dips for speed control and apply water, as necessary;

(2) Limit vehicle speeds and apply water, as necessary;

(3) Pave;

(4) Apply and maintain a gravel pad in compliance with Section 307.6(b)(4) of this rule;

(5) Apply a dust suppressant, other than water; or

(6) Install and maintain a cohesive hard surface.

b. For a new facility, if implementing one of the fugitive dust control measures described in Section 307.3(a) of this rule is determined to be technically infeasible as obtained/approved in writing by the Control Officer and the Administrator of the Environmental Protection Agency (EPA) and as approved in the Dust Control Plan, then the owner and/or operator of a new facility shall maintain a minimum distance of 25 feet from the property line for haul/access roads associated with the new facility.

307.4 On-Site Traffic:

a. The owner and/or operator of a facility shall require all batch trucks and material delivery trucks to remain on internal roads with paved surfaces or cohesive hard surfaces in the permanent areas of the facility/operation that include entrances, exits, warehouses and maintenance areas, office areas, concrete plant areas, asphaltic plant areas, and parking and staging areas, as approved in the Dust Control Plan.

b. The owner and/or operator of a facility shall require all aggregate trucks to remain on internal roads subject to Section 307.4(a) of this rule, when entering and exiting aggregate loading areas/loading operations, as approved in the Dust Control Plan.

c. The owner and/or operator of a facility shall require all batch trucks and material delivery trucks to enter and exit the facility/operation only through entrances that comply with the trackout requirements in Section 307.5 of this rule and that comply with Section 306.5 of this rule.

307.5 **Off-Site Traffic:** When hauling and/or transporting bulk material off-site, the owner and/or operator of a facility shall implement all of the following control measures:

a. Load all haul trucks such that the freeboard is not less than three inches;

b. Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s); and

c. Cover haul trucks with a tarp or other suitable closure.

307.6 **Trackout:**

a. **Rumble Grate And Wheel Washer:** The owner and/or operator of a new permanent facility and the owner and/or operator of an existing permanent facility with a minimum of 60 aggregate trucks, mixer trucks, and/or batch trucks exiting a facility on any day onto paved public roadways/paved areas accessible to the public shall install, maintain, and use a rumble grate and wheel washer, in accordance with all of the following

conditions, as applicable. For the purpose of this rule, a vehicle wash and/or a cosmetic wash may be substituted for a wheel washer, provided such vehicle wash and/or cosmetic wash has at least 40 pounds per square inch (psi) water spray from the nozzle (owner and/or operator of the facility shall have a water pressure gauge available on-site to allow verification of such water pressure), meets the definition of wheel washer (i.e., is capable of washing the entire circumference of each wheel of the vehicle), is operated in such a way that visible deposits are removed from the entire circumference of each wheel of the vehicle exiting the wash, is installed, maintained, and used in accordance with criteria in Section 307.6(a)(1)-(5) of this rule, and is approved in the Dust Control Plan for the facility.

(1) The owner and/or operator of a facility shall locate a rumble grate within 10 feet from a wheel washer. The rumble grate and wheel washer shall be located no less than 30 feet prior to each exit that leads to a paved public roadway/paved area accessible to the public and that is used by aggregate trucks, mixer trucks, and/or batch trucks. The owner and/or operator of a facility may be allowed to install a rumble grate and wheel washer less than 30 feet prior to each exit, if the owner and/or operator of a facility can demonstrate to the Control Officer by September 30, 2005, that there is not adequate space to install a rumble grate and wheel washer no less than 30 feet prior to each exit and that a rumble grate and wheel washer at a shorter distance will be adequate to prevent trackout.

(2) The owner and/or operator of a facility shall ensure that all aggregate trucks, mixer trucks, and/or batch trucks exit the facility via the rumble grate first and then the wheel washer.

(3) The owner and/or operator of a facility shall post a sign by the rumble grate and wheel washer to designate the speed limit as 5 miles per hour.

(4) The owner and/or operator of a facility shall pave the internal roads from the rumble grate and wheel washer to the facility

exits leading to paved public roadways/paved areas accessible to the public.

(5) The owner and/or operator of a facility shall ensure that all aggregate trucks, mixer trucks, and/or batch trucks remain on the paved internal roads between the rumble grate and wheel washer and the facility exits leading to paved public roadways/paved areas accessible to the public.

b. **Rumble Grate, Wheel Washer, Or Truck Washer:** The owner and/or operator of a facility not subject to Section 307.6(a) of this rule shall install, maintain, and use a rumble grate, wheel washer, or truck washer in accordance with all of the following:

(1) A rumble grate, wheel washer, or truck washer shall be located no less than 30 feet prior to each exit that leads to a paved public roadway/paved area accessible to the public and that is used by aggregate trucks, mixer trucks, and/or batch trucks. The owner and/or operator of a facility may be allowed to install a rumble grate, wheel washer, or truck washer less than 30 feet prior to each exit, if the owner and/or operator of a facility can demonstrate to the Control Officer by September 30, 2005, that there is not adequate space to install a rumble grate, wheel washer, or truck washer no less than 30 feet prior to each exit and that a rumble grate, wheel washer, or truck washer at a shorter distance will be adequate to prevent trackout.

(2) The owner and/or operator of a facility shall ensure that all aggregate trucks, mixer trucks, and/or batch trucks exit the facility via a rumble grate, wheel washer, or truck washer.

(3) The owner and/or operator of a facility shall post a sign by the rumble grate, wheel washer, or truck washer to designate the speed limit as 5 miles per hour.

(4) If haul/access roads/internal roads are unpaved between the rumble grate, wheel washer, or truck washer and the facility exits

leading to paved public roadways/paved areas accessible to the public, a gravel pad shall be installed, maintained, and used from the rumble grate, wheel washer, or truck washer to such paved public roadways/paved areas accessible to the public in accordance with all of the following:

(a) Gravel pad shall be designed with a layer of washed gravel, rock, or crushed rock that is at least one inch or larger in diameter and 6 inches deep, 30 feet wide, and 50 feet long and shall be flushed with water or completely replaced as necessary to comply with the trackout threshold described in Section 307.6(d) of this rule.

(b) Gravel pad shall have a gravel pad stabilizing mechanism/device (i.e., curbs or structural devices along the perimeter of the gravel pad) and shall be flushed with water or completely replaced as necessary to comply with the trackout threshold described in Section 307.6(d) of this rule.

c. **Exemptions For Wheel Washers:** The owner and/or operator of a facility shall not be required to install, maintain, and use a wheel washer, if any one of the following are applicable:

(1) A facility has all paved internal roads and meters aggregate or related materials directly to a ready-mix or hot mix asphalt truck, with the exception of returned products. The owner and/or operator of the facility shall install, maintain, and use a rumble grate in compliance with Section 307.6(b) of this rule.

(2) A facility is less than 5 acres in land size and handles recycled asphalt and recycled concrete exclusively. The owner and/or operator of the facility shall install, maintain, and use a rumble grate in compliance with Section 307.6(b) of this rule and shall install a gravel pad in compliance with Section 307.6(b)(4) of this rule on all unpaved internal roads leading to the facility exits

leading to paved public roadways/paved areas accessible to the public.

(3) A facility has a minimum of ¼ mile paved internal roads leading from a rumble grate to the facility exits leading to paved public roadways/paved areas accessible to the public.

(4) A facility meets the definition of infrequent operations, as defined in Section 230 of this rule. The owner and/or operator of the facility shall install, maintain, and use a rumble grate in compliance with Section 307.6(b) of this rule and shall install a gravel pad in compliance with Section 307.6(b)(4) of this rule. The gravel pad shall be installed for a distance of no less than 100 feet from the rumble grate to the facility exits leading to paved public roadways/paved areas accessible to the public. The owner and/or operator of the facility shall keep records in accordance with Section 500 of this rule, as applicable. The owner and/or operator of the facility shall notify the Control Officer in the event that the facility will operate more than 52 days per year based on the average rolling 3-year period after (the adoption date of this rule) and the owner and/or operator of the facility shall comply with Section 307.6 of this rule, as applicable.

d. **Trackout Distance:** An owner and/or operator of a facility shall not allow trackout to extend a cumulative distance of 25 linear feet or more from all facility exits onto paved areas accessible to the public. Notwithstanding the proceeding, the owner and/or operator of a facility shall clean up all other trackout at the end of the workday.

e. **Cleaning Paved Internal Roads:** The owner and/or operator of a facility shall clean all paved internal roads in accordance with all of the following as applicable:

(1) The owner and/or operator of a facility with a minimum of 60 aggregate trucks, mixer trucks, and/or batch trucks exiting the facility on any day shall sweep the paved internal roads with a

street sweeper by the end of each production work shift, if there is evidence of dirt and/or other bulk material extending a cumulative distance of 12 linear feet or more on any paved internal road.

(2) The owner and/or operator of a facility with less than 60 aggregate trucks, mixer trucks, and/or batch trucks exiting the facility on any day shall sweep the paved internal roads with a street sweeper by the end of every other work day. On the days that paved internal roads are not swept, the owner and/or operator of a facility shall apply water as necessary to comply with Section 306 of this rule on at least 100 feet of paved internal roads or the entire length of paved internal roads leading to an exit to paved public roadways/paved areas accessible to the public, if such roadways are less than 100 feet long.

(3) The owner and/or operator of a facility, who purchases street sweepers after (date of adoption of this rule), shall purchase street sweepers that meet the criteria of PM_{10} efficient South Coast Air Quality Management Rule 1186-certified sweepers.

(4) The owner and/or operator of a new facility shall use South Coast Air Quality Management Rule 1186-certified sweepers to sweep paved internal roads.

307.7 **Pad Construction For Processing Equipment:** The owner and/or operator of a facility shall implement, maintain, and use fugitive dust control measures during the construction of pads for processing equipment and shall identify, in the Dust Control Plan, such fugitive dust control measures.

307.8 **Spillage:** In addition to complying with the fugitive dust emission limitations described in Section 306 of this rule and implementing fugitive dust control measures described in Section 307.1 through Section 307.9 of this rule, as applicable, the owner and/or operator of a facility shall implement one of the following fugitive dust control measures, as applicable, when spillage occurs:

a. Promptly remove any pile of spillage on paved haul/access roads/paved internal roads;

b. Maintain in a stabilized condition any pile of spillage on paved haul/access roads/paved internal roads and remove such pile by the end of each day; or

c. Maintain in a stabilized condition all other piles of spillage with dust suppressants until removal.

307.9 **Night-Time Operations:** The owner and/or operator of a facility shall implement, maintain, and use fugitive dust control measures at night, as approved in the Dust Control Plan.

308 **FUGITIVE DUST CONTROL TECHNICIAN:** The owner and/or operator of a facility with a rated or permitted capacity of 25 tons or more of material per hour shall have in place a Fugitive Dust Control Technician or his designee, who shall meet all of the following qualifications:

308.1 Be authorized by the owner and/or operator of the facility to conduct routine inspections, recordkeeping, and reporting to ensure that all fugitive dust control measures are installed, maintained, and used in compliance with this rule.

308.2 Be authorized by the owner and/or operator of the facility to install, maintain, and use fugitive dust control measures, deploy resources, and shutdown or modify activities as needed.

308.3 Be available within 30 minutes.

308.4 Be issued a valid Certificate Of Completion of the Maricopa County Fugitive Dust Control Class.

308.5 Be certified to determine opacity as visible emissions in accordance with the provisions of the EPA Method 9 as specified in 40 CFR, Part 60, Appendix A.

309 **DUST CONTROL PLAN:** The owner and/or operator of a facility shall submit, to the Control Officer, a Dust Control Plan that describes all fugitive dust control measures to be

implemented, in order to comply with Section 306 and Section 307 of this rule. The Dust Control Plan shall, at a minimum, contain all the information described in Rule 310 (Fugitive Dust) of these rules. All other criteria associated with the Dust Control Plan shall meet the criteria described in Rule 310 (Fugitive Dust) of these rules.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 ~~O&M PLAN~~ **COMPLIANCE SCHEDULE:** ~~Any owner or operator of a facility employing an ECS device as of April 21, 1999 to meet the requirements of this rule, shall file, by October 18, 1999, an O&M Plan with the Control Officer in accordance with subsection 501.3 of this rule.~~ The newly amended provisions of this rule shall become effective upon adoption of this rule and the following schedule applies:

401.1 **Dust Control Plan:** When complying with Section 309 of this rule, if a Dust Control Plan is required to be revised, then a revised Dust Control Plan shall be submitted to the Control Officer by September 30, 2005 or three months after rule adoption, whichever comes first.

401.2 **Pressure Control System:** When complying with Section 303.2(e) of this rule, a pressure control system shall be installed by December 31, 2005 or six months after rule adoption, whichever comes first.

401.3 **Operational Overflow Warning System/Device:** When complying with Section 302.2(a) and/or Section 303.2(a) of this rule, an operational overflow warning system/device shall be installed by December 31, 2005 or six months after rule adoption, whichever comes first.

401.4 **Fugitive Dust Control Technician:** When complying with Section 308 of this rule, a Fugitive Dust Control Technician shall be in place by December 31, 2005 or six months after rule adoption, whichever comes first.

401.5 **Surface Stabilization Where Support Equipment And Vehicles Operate:** When complying with Section 307.2 of this rule, surface stabilization and/or paving shall be completed by December 31, 2005 or six months after rule adoption, whichever comes first.

401.6 **Trackout:** When complying with Section 307.6 of this rule, a rumble grate, wheel washer, or truck washer shall be installed and a schedule for using PM_{10} efficient

South Coast Air Quality Management Rule 1186-certified street sweepers shall be in place by January 1, 2006.

401.7 **Process Emission Limitations And Controls:** When complying with Section 301, Section 302, and/or Section 303 of this rule, process emission limitations shall be complied-with and controls shall be installed by December 31, 2005 or six months after rule adoption, whichever comes first.

SECTION 500 - MONITORING AND RECORDS

501 **RECORDKEEPING AND REPORTING:** Any ~~person~~ owner and/or operator of a facility subject to this rule shall comply with the following requirements. Records shall be retained for five years and shall be made available to the Control Officer upon request.

501.1 Operational information required by this rule shall be kept in a complete and consistent manner on-site and be made available without delay to the Control Officer upon request.

501.2 Records of the following process and operational information, as applicable, are required:

a. **General Data:** Daily records shall be kept for all days that a ~~plant~~ facility is actively operating. Records shall include all of the following: ~~hours of operation; type of batch operation (wet, dry, central); throughput per day of basic raw materials including sand, aggregate, cement, (tons/day); volume of concrete and asphaltic concrete produced per day; volume of aggregate mined per day (cu. yds./day); composition of a cubic yard of concrete produced (percent cement, sand, aggregate, admixture, water, fly ash, etc.); composition of a cubic yard of asphaltic concrete produced (percent cement, sand, aggregate, gypsum, admixture, water, fly ash, etc.); amount of each basic raw material including sand, aggregate, cement, fly ash delivered per day (tons/day).~~

(1) Hours of operation;

(2) Type of batch operation (wet, dry, central);

(3) Throughput per day of basic raw materials including sand, aggregate, cement (tons/day);

(4) Volume of concrete and asphaltic concrete produced per day;

(5) Volume of aggregate mined per day (cubic yards/day); and

(6) Amount of each basic raw material including sand, aggregate, cement, fly ash delivered per day (tons/day).

b. Additional Data For Dry Mix Concrete Plants And/Or Bagging Operations: ~~The number of bags of dry mix produced per day; weight (size) of bags of dry mix produced per day; kind and amount of fuel consumed in dryer (cu. ft./day or gals./day); kind and amount of any back-up fuel (if any).~~ Records shall include all of the following:

(1) Number of bags of dry mix produced;

(2) Weight (size) of bags of dry mix produced;

(3) Kind and amount of fuel consumed in dryer (cubic feet/day or gallons/day); and

(4) Kind and amount of any back-up fuel, if any.

c. Control And Monitoring Device Data: ~~Baghouse records shall include dates of inspection, dates and designation of bag replacement, dates of service or maintenance, related activities, static pressure gauge (manometer) hourly readings. Scrubber records shall include dates of service or maintenance related activities; the scrubbing liquid flow rate; the pressure or head loss; and/or any other operating parameters which need to be monitored to assure that the scrubber is functioning properly and operating within design parameters. Records of time, date and cause of all control device failure and down time shall also be maintained.~~ Records shall include all of the following:

(1) For a fabric filter baghouse:

(a) Date of inspection;

(b) Date and designation of bag replacement;

(c) Date of service or maintenance related activities; and

(d) Time, date, and cause of fabric filter baghouse failure and/or down time, if applicable.

(2) For a scrubber:

(a) Date of service or maintenance related activities;

(b) Liquid flow rate;

(c) Other operating parameters that need to be monitored to assure that the scrubber is functioning properly and operating within design parameters; and

(d) Time, date, and cause of scrubber failure and/or down time, if applicable.

501.3 ECS O&M Plan Records: An owner ~~or~~ and/or operator of a facility shall maintain ~~a record of the periods of time than an approved ECS is used to comply with this rule. Key system parameters, such as flow rates, pressure drops, and other conditions necessary to determine if the control equipment is functioning properly, shall be recorded in accordance with the approved O&M Plan. The records shall account for any periods when the control system was not operating. The owner or operator of a facility shall also maintain results of the visual inspection and shall record any corrective action taken, if necessary.~~ all of the following records in accordance with an approved O&M Plan:

a. Periods of time that an approved ECS is operating to comply with this rule;

b. Periods of time that an approved ECS is not operating;

c. Flow rates;

d. Pressure drops;

e. Other conditions necessary to determine if the approved ECS is functioning properly;

f. Results of visual inspections; and

g. Correction action taken, if necessary.

501.4 **Dust Control Plan Records:** An owner and/or operator of a facility shall compile, maintain, and retain records as described in Rule 310 (Fugitive Dust) of these rules.

502 **COMPLIANCE DETERMINATION - 40 PART 60, APPENDIX A TEST METHODS ADOPTED BY REFERENCE:** The test methods for those subparts of 40 ~~Code Of Federal Regulations (~~CFR~~)~~ Part 60, Appendix A, adopted as of ~~July 1, 1998~~ July 1, 2003, as listed below, are adopted by reference as indicated. This adoption by reference includes no future editions or amendments. Copies of test methods referenced in Section 502 of this rule are available at the Maricopa County Environmental Services Department, 1001 North Central Avenue, Phoenix, Arizona, 85004-1942. When more than one test method is permitted for a compliance determination, then an exceedance of the limits established in this rule, determined by any of the applicable test methods, constitutes a violation of this rule.

502.1 **Grain Loading:** Particulate matter and associated moisture content shall be determined using the applicable EPA Reference Methods 1 through 5, 40 CFR Part 60, Appendix A.

502.2 **Opacity Determination:** Opacity observations to measure the opacity of visible emissions shall be conducted in accordance with the ~~techniques specified in EPA Reference Method 9, 40 CFR Part 60, Appendix A, except the opacity observations for intermittent visible emissions shall require 12 (rather than 24) consecutive readings at 15 second intervals.~~ test methods described in Appendix C (Fugitive Dust Test Methods) of these rules.

503 COMPLIANCE DETERMINATION - SOIL MOISTURE CONTENT AND SOIL COMPACTION CHARACTERISTICS TEST METHODS ADOPTED BY REFERENCE:

503.1 ASTM Method D2216-98 ("Standard Test Method For Laboratory Determination Of Water (Moisture) Content Of Soil And Rock By Mass"), 1998 edition.

503.2 ASTM Method D1557-91 (1998) ("Test Method For Laboratory Compaction Characteristics Of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2,700 kN-m/m^3)"), 1998 edition.

504 COMPLIANCE DETERMINATION - STABILIZATION STANDARDS TEST METHODS ADOPTED BY REFERENCE: The stabilization standards described in Section 306.5 of this rule shall be determined by using the following test methods in accordance with Appendix C (Fugitive Dust Test Methods) of these rules:

504.1 Appendix C, Section 2.1.1 (Silt Content Test Method) of these rules to estimate the silt content of the trafficked parts of unpaved roads and unpaved parking lots.

504.2 Appendix C, Section 2.3 (Test Methods For Stabilization-Visible Crust Determination) (The Drop Ball/Steel Ball Test) of these rules for a visible crust.

504.3 Appendix C, Section 2.4 (Test Methods For Stabilization-Determination Of Threshold Friction Velocity (TFV)) (Sieving Field Procedure) of these rules for threshold friction velocity (TFV) corrected for non-erodible elements of 100 cm/second or higher.

504.4 Appendix C, Section 2.5 (Test Methods For Stabilization-Determination Of Flat Vegetative Cover) of these rules for flat vegetation cover (i.e., attached (rooted) vegetation or unattached vegetative debris lying on the surface with a predominant horizontal orientation that is not subject to movement by wind) that is equal to at least 50%.

504.5 Appendix C, Section 2.6 (Test Methods For Stabilization-Determination Of Standing Vegetative Cover) of these rules for standing vegetation cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 30%.

504.6 Appendix C, Section 2.6 (Test Methods For Stabilization-Determination Of Standing Vegetative Cover) of these rules for standing vegetation cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 10% and where the threshold friction velocity is equal to or greater than 43 cm/second when corrected for non-erodible elements.

504.7 Appendix C, Section 2.7 (Test Methods For Stabilization-Rock Test Method) of these rules for a percent cover that is equal to or greater than 10%, for non-erodible elements.

504.8 An alternative test method approved in writing by the Control Officer and the Administrator of the EPA.

505 **CERTIFIED STREET SWEEPING EQUIPMENT LIST ADOPTED BY REFERENCE**: The list of street sweeping equipment (as of July 9, 2004) that has met the South Coast Air Quality Management Rule 1186 certification standards is found in support documents for the South Coast Air Quality Management District Regulation XI (Source Specific Standards), Rule 1186 (PM_{10} Emissions From Paved And Unpaved Roads And Livestock Operations) and is adopted by reference. A copy of the list of certified street sweeping equipment can also be obtained at Maricopa County Air Quality Department, 1001 North Central Avenue, Phoenix, Arizona, 85004.